An Address

ON

SOME PROBLEMS IN CONNEXION WITH THE SUPRARENALS.

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GENTLEMEN,—First let me express my sincere gratitude for the high compliment which you have paid me in asking me to give the Address in Medicine. The subject matter of an address in medicine must always be a source of some anxiety to those intrusted with the honour. It may either be on general lines and deal with the history, recent advances, future, and relations of medicine, or it may be more special and deal with a single subject. Each course has its own disadvantages, but after some consideration I have decided on a special subject and I must beg your indulgence for the following review of some problems in connexion with the suprarenal glands.

As is well known the suprarenals are composite glands consisting of two portions which are distinct from a developmental and from a physiological point of view—the cortex derived from cœlomic epithelium on the Wolffian ridge and closely related to the genital glands, and the medulla derived from the sympathetic and neuro-ectodermal in origin. These two portions are separated from each other in elasmobranch fishes, the cortical cells forming the single inter-renal gland and the medullary cells a series of paired bodies connected with the sympathetic (Swale Vincent).

THE CORTEX.

The cortex is larger than the medulla and is composed of epithelial cells the structure of which suggests a high degree of functional activity; in Biedl's hands experimental removal of the cortex, the medulla being left intact, was followed by death of the animals; and it is stated that compensatory hypertrophy of accessory suprarenals, when this occurs after excision of the main glands, is solely cortical. These considerations strongly suggest that the cortex has some important function and that it is essential to life, but in what exact way is as yet unknown. The most certain point about the cortex is that it is quite unlike the medulla. Its cells contain fat and lecithin but do not give a green colour with ferric chloride (Vulpian's reaction) or a brown colour with chromic acid as the chromaffine cells of the medulla do. Physiologically extracts of the cortex are quite inactive and do not raise the blood pressure. Our knowledge as to the function of the cortex is very imperfect, but some arguments can be adduced in favour of each of the three following views—namely, that it may be concerned (1) with growth and development, especially of the sexual organs; (2) with neutralising poisons; or (3) in some manner with the internal secretion of the medulla—adrenalin.

1. *The relation of the cortex of the suprarenals to growth and development, especially of the sexual organs.*—It is now known that there is a definite group of cases in young children, the peculiar feature of the cases being that a primary tumour of the suprarenal body (hypernephroma, mesothelioma) (Woolley[1]) is associated with excessive development of the organs of generation, hair, and fat. Bulloch and Sequeira[2] have collected ten cases, all but two under eight years of age, two in males and eight in females, showing this precocious development in association with a hypernephroma which, in some of the cases at any rate, was derived from the cortex of the suprarenal; further researches will naturally be directed to determining whether hypernephromas of cortical origin are, as suggested here, specially associated with exaggerated growth, while hypernephromas arising in the medulla of the suprarenal show no such association. Bulloch and Sequeira have indeed collected 12 cases of hypernephromas in children who did not show any signs of premature development and in some of these cases the tumours, described as sarcomas or lymphosarcomas, were definitely regarded as arising from the medulla of the gland. It must, however, be noted that in adults cortical hypernephromas, which are probably more often seen in the kidney (renal hypernephromas or "adrenal rest" tumours) than in the main adrenal gland, are not associated with the notable genital development, hirsuties, and obesity seen in children. As rare exceptions to this rule attention may be directed to Thornton's[3] case of a woman, aged 36 years, who was covered all over with black silky hair and had to shave her face, and to a somewhat similar case in a female lunatic, aged 32 years (Richards[4]). In passing it is interesting to note the rarity of renal tumours of adrenal origin in children as compared with the incidence of these tumours in adults and with the incidence of hypernephromas in early life. But although excessive genital development and growth of hair in a child should always suggest the existence of a cortical hypernephroma, it must be remembered that these striking signs may exist without any such lesion in the suprarenals (Guthrie and Emery).[5] As bearing on the connexion between exaggerated cellular growth of the suprarenal cortex and the development of the genital organs, a few cases are on record in which suprarenal hyperplasia has been found in individuals with such excessive size of the clitoris that they were erroneously regarded as males. Further, enlargement of the suprarenals has been noted in animals during periods of sexual activity and pregnancy, and it has appeared to me that there is a close resemblance between the cells of the suprarenal cortex on the one hand and the luteal cells normally found in corpora lutea and exceptionally in luteal cysts on the other hand. This resemblance both histologically and morphologically has been insisted on by Mulon[6] who, from observations on guinea-pigs, speaks of the corpus luteum of pregnancy as a temporary cortical suprarenal. It is interesting to compare these developmental anomalies accompanying some cortical hypernephromas with acromegaly which is usually associated with hyperplasia or adenomatous change in the anterior lobe of the pituitary gland. For, as Schäfer and Herring[7] point out, the anterior lobe of the pituitary and the cortex of the adrenal are alike in several particulars—namely, in the glandular character of their epithelium, in the physiological inactivity of their extracts, and in ensheathing collections of neuro-ectodermal cells (the posterior or infundibular lobe, and the adrenal medulla) which, on the contrary, possess extremely active physiological extracts. As bearing in a somewhat remote manner on the relation of the suprarenal cortex to the growth of the body it may be mentioned that evidence is accumulating to show that primary malignant growths of the cortex, like primary carcinomas of the thyroid, have a special tendency to produce metastases in bone (Scudder).[8] This similarity to the thyroid is of interest in the light of the well-established influence of the thyroid on skeletal growth.

Conversely, hypoplasia of the suprarenals has been found in anencephalous monsters; but the relation between the two developmental abnormalities is doubtful, Zander[9] regarding the lesion of the nervous system as primary and Alexander[10] considering the suprarenal defect as primary. Very possibly, however, the failure of development is concomitant; in any case this association is not a strong argument in support of the influence of the suprarenal cortex on the growth of the body, for the hypoplasia of the suprarenals appears to affect the cortex and medulla equally and not to be specially marked in the cortex. Hypoplasia of the suprarenals has been met with in a few cases of retarded sexual development, and in their case of osteogenesis imperfecta Lovett and Nichols[11] found the internal organs normal with the exception of the small size of the suprarenals. The view has been put forward, but without any

[1] Woolley: Transactions of the Association of American Physicians, 1902, vol. xvii.

[2] Bulloch and Sequeira: Transactions of the Pathological Society of London, 1905, vol. lvi., p. 189.

[3] Thornton, K.: Transactions of the Clinical Society of London, 1890, vol. xxiii., p. 153.

[4] Richards, O. W.: Guy's Hospital Reports, 1905, vol. lix., p. 225.

[5] Guthrie and Emery: Transactions of the Clinical Society of London, 1907, vol. xl.

[6] Mulon, P.: Comptes Rendus de la Société de Biologie, Paris, 1903, vol. lxi., p. 272.

[7] Schäfer and Herring: Philosophical Transactions of the Royal Society, London, 1906, vol. cxcix., p. 27, Series B.

[8] Scudder, C. L.: Publications of the Massachusetts General Hospital, 1907, vol. i., No. 3, p. 82.

[9] Zander: Ziegler's Beiträge, 1891, Band xi., S. 145.

[10] Alexander: Ibid., 1890, Band vii., S. 441.

[11] Lovett: Brit. Med. Jour., 1906, vol. ii., p. 191.

real proof, that mollities ossium is the result of suprarenal inadequacy.

There thus appears to be evidence that in some instances pathological changes in the cortex of the suprarenal glands, whether in the direction of hyperplasia or of imperfect development, are associated with similar conditions of growth generally and especially of the genital organs.

2. *The question whether the suprarenal cortex has the power of neutralising toxins* is a subject about which very little is known and on which it is dangerous though attractive to speculate. It was formerly thought that the suprarenal bodies destroyed effete blood pigment, but this conception has been given up for want of proof. That the cortex may exert antidotal properties is suggested by Myers's[12] observations that cobra poison after being mixed with an emulsion of the suprarenal cortex was no longer toxic, control experiments with emulsions of the suprarenal medulla and of other organs being negative. Experimental infections with various organisms, such as bacillus tuberculosis, slow diphtherial intoxication, and lead poisoning (Gouget[13]), have been found to give rise to hypertrophy of the cortex of the adrenal glands, thus suggesting increased functional activity. It may be mentioned incidentally that, according to Mulon,[14] the histological evidence of over-activity (*hyperlipinéphrie*) of the cortex is increased pigmentation and diminished fat in its cells.

Adenomas or nodular hyperplasia of the suprarenal cortex are found in a certain number of necropsies. In 6200 necropsies at St. George's Hospital, London, adenomas were present in 11 cases, or 0·2 per cent. (Hodge), and at Guy's Hospital in 0·7 per cent. of necropsies (Richards). They are sometimes found in cases of chronic pulmonary tuberculosis, but special attention has been drawn to the association of cortical adenomas with granular kidneys and high blood pressure, and it has been pointed out that they are rare in cases of chronic nephritis with low blood pressure. There would therefore appear to be some relation between their presence and high arterial blood pressure; as the cortex does not contain any pressor substance it cannot be held that the cortical hyperplasia causes the increased pressure, and it has been suggested that the adenomas are evidence of an attempt on the part of the cortex to neutralise the toxins responsible for the high blood pressure (Aubertin and Ambard[15]). As bearing on this it may be mentioned that it is stated that experimental lesions of the kidney lead to hyperplasia of the adrenals (Darré[16]). The main interest of the speculation as to the existence of antitoxic function in the cortex of the adrenal glands is in connexion with the pathogenesis of Addison's disease. The low blood pressure and extreme asthenia in that disease can be satisfactorily explained as due to an absence of adrenalin or the pressor substance provided by the medulla, but the vomiting, gastro-intestinal disturbance, and the pigmentation suggest irritation of the sympathetic. This has, in the past, usually been attributed to invasion of the adjacent sympathetic by inflammatory changes and adhesions, or to mechanical stimulation of these nerve plexuses by tuberculous masses in the adrenal glands, but this explanation breaks down for cases in which the adrenals are only atrophied. To meet this objection it has been supposed that the absence of adrenalin leads, by perverted metabolism, to a toxæmic state, and that this toxæmia accounts for the irritative manifestations. On the other hand, Addison's disease might be regarded as the outcome of total suprarenal inadequacy—namely, of (*a*) medullary inadequacy which, by the absence of adrenalin, accounts for asthenia and low blood pressure, and of (*b*) cortical inadequacy, which accounts for the irritative symptoms by failure of an antitoxic function exerted by this part of the organ. It is conceivable that, owing to destruction or atrophy of the cortex, there is no longer neutralisation of toxic bodies and that these accumulate and irritate the sympathetic. In this connexion it may be pointed out that the widespread distribution of pigmentation is more readily explained by a general toxæmia than by a local irritation of the sympathetic. It may also be urged in favour of this hypothesis that it explains why suprarenal extract so commonly fails to cure Addison's disease in the same way that thyroid extract counteracts myxœdema; for although suprarenal extract provides the wanting adrenalin, the extract of the cortex, even when given, is not necessarily the equivalent of the activities of the living cells of that tissue.

3. *That the cortex is in some way concerned with the internal secretion of the medulla.*—Although it does not contain any pressor substance, it is conceivable that the cortex plays an essential part in the early stages of the formation of adrenalin and that the process of elaboration is completed in the medulla, in which part alone the full activity of the secretion is acquired. In favour of this hypothesis Schäfer and Herring[17] point out the analogy between the pituitary and the suprarenal glands. In both, the glandular epithelial parts (anterior lobe and cortex) are inactive, while the neuro-ectodermal parts (infundibular portion and medulla) yield a highly active extract. The close anatomical relation of the epithelial and neuro-ectodermal parts in the two glands suggests that their physiological relation may be equally close.

We have thus seen that three views at least have been put forward as to the function of the cortex: (1) that it is connected with growth, especially of the sexual organs; (2) that it is antitoxic; and (3) that it plays some part in the elaboration of the internal secretion of the medulla. *A priori* it would appear improbable that the cortex discharges all these three functions, but from experiments on animals Marrassini[18] has put forward the view that the three zones of the cortex—zona glomerulosa, zona fasciculata, and zona reticularis—have different functions; this is little more than a suggestion, but it shows the need of waiting for further investigation. The most definite point about the cortex would appear to be that it is co-related with sexual growth.

THE MEDULLA.

The cells of the medulla provide a pressor substance—adrenalin—which acts on the sympathetic nerve endings. These cells, called chromophil or chromaffine from their affinity for chromic acid, are not confined to the medulla of the suprarenal glands but are found elsewhere in contact with the sympathetic, as Zuckerkandl's parasympathetic bodies, the inter-carotid gland which has been described as an accessory medullary adrenal (Mulon[19]), Luschka's coccygeal gland, and some collections of cells in the pituitary body. The medulla of the suprarenals therefore forms the most conspicuous part but not the whole of what has been called the hypertensive glandular system. The importance of this conception is that it explains why cases with destruction of the medullary portions of the adrenals do not always manifest the symptoms of Addison's disease, the remainder of the chromaffine system being sufficient to supply the required amount of adrenalin; conversely in some cases of Addison's disease in which the medulla of the suprarenals is not obviously affected, the hypertensive system, as a whole, may conceivably be deficient. The possible pathological relations of the internal secretion of the medulla may be divided into (I.) alteration in quantity, (*a*) absence, (*b*) diminution, and (*c*) excess; and (II.) alteration in quality.

I. *Alteration in quantity.*—(*a*) Complete absence of the internal secretion is met with in Addison's disease as is proved by the inactive condition of the medulla when tested physiologically. It has also been shown that the suprarenal medulla may be devoid of adrenalin in patients dying from chronic exhausting diseases, and that though there is often obvious naked-eye change in the glands this is not an invariable accompaniment of the loss of functional activity (Mott and Halliburton). As bearing on the interesting question whether there is normally an equilibrium between the pressor or hypertensive internal secretions of the medulla of the suprarenals and of the other collections of chromaffine cells on the one hand and the depressor internal secretion of the thyroid on the other hand, it may be pointed out that in Addison's disease a relative excess of the internal secretion of the thyroid might be expected on account of the absence of adrenalin. There is, however, no evidence of this in Addison's disease; there

[12] Myers, W.: Transactions of the Pathological Society of London, 1898, vol. xlix., p. 368.
[13] Gouget: Comptes Rendus de la Société de Biologie, Paris, 1903, vol. lv., p. 1659.
[14] Mulon, P.: Ibid., 1907, vol. lxii., p. 905.
[15] Aubertin et Ambard: Mémoire et Bulletin de la Société Médicale des Hôpitaux de Paris, 1904, p. 175.
[16] Darré: Thèse de Paris, 1907, quoted by Beaujard, emaine Médicale, Paris, 1907, p. 230.
[17] Schäfer and Herring: Philosophical Transactions of the Royal Society of London, 1906, Series B, vol. cxcix., p. 27.
[18] Marrassini: Archives Italiennes de Biologie, Turin, 1906, vol. xlvi., p. 73.
[19] Mulon: Archives Générales de Médicine, Paris, 1904, p. 2543.

are no symptoms resembling those produced by overdoses of thyroid extract or thyroidism, and so far as this goes it would appear that if there be normally a balance between the internal secretions of the suprarenal and thyroid glands, this balance is partially maintained, possibly by diminished thyroid secretion or by some neutralisation of the active thyroid secretion by the tissues of the body, when the internal secretion of adrenalin fails entirely. There is, of course, one manifestation common to Addison's disease and exophthalmic goitre—namely, pigmentation—but it is very difficult, in the present state of our knowledge, to explain this as the result of one and the same process in the two diseases. It is much more likely that in both cases there is over-excitation of the sympathetic nerves, in exophthalmic goitre by an excessive and abnormal thyroid secretion and in Addison's disease by a toxæmia possibly depending on inadequacy of the hypothetical antitoxic function of the cortex of the suprarenals.

(*b*) Diminution in the amount of adrenalin. This may be considered under the heads of (1) chronic inadequacy; (2) acute inadequacy; and (3) relative inadequacy. (1) Chronic inadequacy. The existence of cases of larval or frustrate myxœdema has now long been recognised; the condition has also been called benign hypothyroidism. The most convincing proof of its existence in a given case is improvement after the administration of thyroid extract. Similarly there is a condition of deficient adrenalin secretion. Possibly in some cases this defect of the adrenalin-secreting cells may be congenital; and it has been suggested that the status lymphaticus and hæmophilia are thus explained (Wiesel). A condition of deficient secretion of adrenalin, or partial medullary inadequacy, is probably more commonly acquired and the result of morbid changes in the medulla. These changes may be due to tuberculous, syphilitic, or cancerous invasion secondary to disease elsewhere in the body; or to toxins conveyed from other parts of the body—for example, the lungs in cases of tuberculosis may so act on the suprarenals as to produce degeneration and fibrosis; or, again, as the result of acute infections, such as staphylococcal or pneumococcal, the suprarenals may be permanently damaged and suprarenal inadequacy be established; this sequence of events is analogous to chronic nephritis after an acute attack of nephritis. To this condition of suprarenal inadequacy the name Addisonism has been applied by Boinet,[20] who in 37 cases of pulmonary tuberculosis manifesting Addisonism found the suprarenal bodies fibrosed in 30, infiltrated with small tubercles in four, and with caseous tubercles in three. This conception has some bearing on the pigmentation which so commonly accompanies advanced pulmonary tuberculosis and often raises the question as to the existence of Addison's disease. Everyone is familiar with these cases, but as the symptoms are not sufficiently marked to justify a diagnosis of Addison's disease, the tendency has been rather to put the factor of the suprarenals aside in attempting to explain the melanodermia of advanced pulmonary tuberculosis. Since it has been shown that the suprarenal medulla may be devoid of adrenalin in exhausting diseases (Mott and Halliburton) there appears to be reasonable ground for the view that Addisonism may here be present. Boinet recommends adrenalin in these cases; in order to determine whether there is or is not suprarenal inadequacy the effect of adrenalin on the arterial blood pressure should be estimated, for O. F. Grünbaum[21] has shown that in healthy persons suprarenal extract has no effect on blood pressure, but that a rise of blood pressure after the administration of suprarenal extract indicates suprarenal inadequacy. This method of diagnosis and treatment deserves further trial. But it must be borne in mind that though low blood-pressure and asthenia may be counteracted by adrenalin, the pigmentation has not been proved to depend on want of the internal secretion of the medulla, and hence it cannot be anticipated that the administration of adrenalin will remove the melanodermia, which may, indeed, depend on a concomitant lesion of the cortex. Just as numerous symptoms have been referred to benign hypothyroidism, so it is not illogical to suppose that various conditions, characterised by low blood-pressure and debility both of the involuntary and voluntary muscles, may depend on an insufficient supply of adrenalin. Thus it has been suggested, but by no means proved, that cyclical albuminuria and forms of neurasthenia associated with low blood-pressure are manifestations of adrenal insufficiency.

(2) Acute adrenal inadequacy. It occasionally happens that death occurs suddenly in patients suspected to be the subjects of Addison's disease on account of some abnormal pigmentation, but without any definite constitutional symptoms; or that persons previously in fair health and certainly not known to have any disease suddenly become acutely ill, often with convulsions, and die rapidly from collapse. In some of these cases tuberculous disease of the suprarenal bodies is found at the necropsy and death is perhaps certified as due to Addison's disease. Though this conclusion is in the main correct it does not explain the fulminating character of the termination. It is probable that this is due to some form of acute infection attacking the suprarenal glands and leading to suppression of their functional activity, and it can easily be understood that this will occur more readily when the amount of suprarenal medullary substance available has been previously curtailed. In many acute infections, especially in diphtheria, the micro-organisms or toxins produce acute changes, such as cloudy swelling, necrosis, and leucocytic infiltration, in adrenals previously healthy. In some instances the damage is so acute that hæmorrhage occurs into the glands. This acute condition of adrenal hæmorrhage has been specially studied in children, and it has been suggested on the one hand that rapidly fatal hæmorrhagic small-pox explains some of the cases; thus, of ten recorded cases seven were unvaccinated (Riviere[22]), and on the other hand that the condition is due to food poisoning or an acute toxæmia of unknown origin and is possibly a distinct disease (Dudgeon[23]). Acute adrenal hæmorrhage may also complicate various fevers such as diphtheria, enteric, pneumonia, and erysipelas. The hæmorrhages may be punctate, infiltrating or massive, unilateral or bilateral. The most characteristic symptoms of these adrenal hæmorrhages are sudden onset with fever, violent pain in the hypochondrium radiating to the loins, convulsions, vomiting, diarrhœa, and, later, tympanites, collapse, and death within 48 hours from the onset. No doubt damage is done to the adjacent abdominal sympathetic by the hæmorrhage, and thus clinical manifestations analogous to those of hæmorrhagic pancreatitis are produced. Cutaneous purpura is sometimes associated with hæmorrhage into the adrenals, as in variola, and it would, at any rate at first sight, appear probable that the same underlying cause—toxæmia or bacteriæmia—is responsible for both sets of hæmorrhages. It has, however, been thought that the changes in the adrenals are primary and the purpura secondary (Loeper[24]), that purpura may stand in the same relation to acute destruction of the suprarenals as pigmentation does to chronic destruction (Dudgeon), and that the proper treatment is to give adrenalin. It is worth while to inquire to what extent the low blood pressure and circulatory failure seen in acute febrile diseases are the result of temporary suprarenal inadequacy, brought about by the action of bacterial toxins on the cells of the medulla of the suprarenal bodies. The action of toxins on the heart muscle cannot be questioned, but it is conceivable that some of the loss of vascular tone in fever is due to a want of adrenalin and that it is not entirely the result of the direct action of toxins on the vascular system. This question is of practical importance as bearing on the advisability of giving adrenalin in acute diseases with threatened failure of the circulation. That the amount of adrenalin in the suprarenal glands may be greatly diminished by acute disease has been shown by testing the glands physiologically (Mott and Halliburton[25]). The medulla of animals poisoned by diphtheria is devoid of adrenalin, as shown by the colour reaction with chromic acid (Elliott and Tuckett[26]), and it had previously been found empirically that adrenalin was of great value in the cardiac failure of diphtheria. An obvious objection to the administration of adrenalin in such conditions is that if it increases the peripheral resistance it will of necessity give the failing left ventricle more work to do and so be harmful rather than beneficial. I have, however, for some considerable time been in the habit of

[20] Boinet: Archives Générales de Médecine, 1904, vol. cxciv., pp. 2324, 2525.

[21] Grünbaum, O. F.: Transactions of the Royal Medical and Chirurgical Society, London, 1907, vol. xc.

[22] Riviere, C.: Transactions of the Pathological Society of London, 1902, vol. lii., p. 368.

[23] Dudgeon: American Journal of Medical Science, Philadelphia, 1904, vol. cxxvii., p. 134.

[24] Loeper: Cliniques Médicales de l'Hôtel-Dieu, Paris, 1906, tome v., p. 90.

[25] Mott and Halliburton: Archives of Neurology, 1907, vol. iii., p. 123.

[26] Elliott and Tuckett: Journal of Physiology, London, 1906, vol. xxxiv., p. 332.

giving adrenalin by the mouth in cases of pneumonia in adults and in bronchopneumonia in children, and, I believe, with good results; it has appeared to prevent cardiac failure and has not given rise to any bad symptoms such as œdema of the lungs. Another objection raised against this use of adrenalin is that experimentally it produces arterial degeneration; as bearing on this I have examined the aorta in a few cases in which adrenalin had been given during life and have not found any recent changes. But I do not lay any stress on this for several reasons—my observations are quite insufficient, the amount and duration of the administration of adrenalin were not comparable with those employed in the experimental degeneration, and even if recent changes were found it might be argued that they were due to toxins of the disease responsible for death. While I believe that adrenalin is a valuable circulatory tonic in acute infections, especially pneumonia, I am anxious that this point should be more thoroughly tested, especially as I have found but little increase in the blood pressure of febrile patients showing apparent improvement while taking adrenalin.

(3) Relative inadequacy of the internal secretion of the medulla. By this is meant that if there be normally a balance between the effects of the pressor and depressor glands, any excessive secretion (depressor) of the thyroid should lead, the pressor secretion maintaining the normal mean, to a relative deficiency of the antagonising internal secretion. The question that arises here is whether the symptoms of thyroidism, of exophthalmic goitre, and the allied toxic manifestations which, as Sir Victor Horsley[27] points out, may sometimes be seen in ordinary goitre are in any degree due to a relative deficiency in the secretion of adrenalin. It is clear from Janeway's[28] summary that the blood pressure is not low in exophthalmic goitre, as might naturally be expected if the disease be regarded as due to simple hyperthyroidism, and that it may be very considerably raised as the result of psychical excitement. In the few cases in which I have taken the blood pressure with a Riva-Rocci sphygmometer it has been rather above than below the normal. It is true that in some cases of exophthalmic goitre improvement has followed the administration of suprarenal extract; I have seen this myself. But it must be remembered that exophthalmic goitre often improves both spontaneously and after widely different forms of treatment, and that it has not been shown that suprarenal medication is a certain means of counteracting the symptoms of exophthalmic goitre. We have therefore no evidence that an excess of thyroid secretion produces bad effects by means of a relative deficiency in adrenalin.

(*c*) Excessive secretion of adrenalin. Here, again, very little is known. The excess might conceivably be (1) due to an excessive secretion of adrenalin by the medulla, or absolute excess, or (2) be relative and depend on a diminution in the amount of the thyroid secretion. (1) Since the demonstration that atheroma can be artificially produced in animals by the injection of adrenalin (Josué,[29] Pearce and Stanton,[30] and others) the question has arisen whether high arterial blood pressure in man and its results—hypertrophy of the left ventricle, arterio-sclerosis, atrophic changes in the kidneys, and so forth—may be due to an excess of adrenalin in the circulation. As it is generally believed that in renal disease a raised blood pressure is, within limits, useful, it might be assumed that this compensatory process is brought about by hyperplasia of the suprarenal medulla. Let us see how the evidence available bears on this question. From some experiments on animals Marrassini[31] concludes that interference with the renal excretion increases the functional activity of the medulla. A case of parenchymatous nephritis with great hypertrophy of the left ventricle and manifest hyperplasia of the medulla of the suprarenals has been reported (Vaquez and Aubertin)[32] and might be taken to support this view. But as regards this special form of renal disease this would appear to be almost an isolated observation. Wiesel[33] has recorded a number of cases of high blood pressure, arterio-sclerosis, and granular kidney, associated with enlargement of the suprarenal medulla and also of the chromaffine cells in the solar plexus. Here it might at first sight be thought that the suprarenal change was the cause of the high blood pressure and of the structural changes, as in experimental atheroma. It has, it is interesting to note, been suggested (W. Russell)[34] that certain foods, especially proteins, may lead to increased secretion of adrenalin. It would thus be possible to construct a hypothesis of dietetic excess, absorption from the intestine of toxic bodies which stimulate the medulla of the suprarenals to increased functional activity followed by hypertrophy, and that subsequently the cardio-vascular changes are produced. But Wiesel believes that the cardiac hypertrophy precedes the hyperplasia of the suprarenal medulla and is not due to it. This relation between the sequence of events must be somewhat difficult to determine and the subject is in need of further study. At present there is no proof of the existence of any disease due to excessive adrenalin secretion and corresponding to exophthalmic goitre in the case of the thyroid, but on this point we must be content to wait for further information.

(2) Relative excess due to a deficiency in the amount of antagonising depressor internal secretion. It is conceivable that, as the result of the atrophy of the thyroid which so commonly accompanies advancing years, the equilibrium normally existing between the internal secretions of the thyroid (depressor) and of the adrenal medulla (pressor) would no longer be maintained and that an excess of adrenalin would therefore accumulate in the circulation and thus induce a correspondingly high arterial pressure. In other words, that the rise of arterial blood pressure as life advances is due to a predominance of the pressor internal secretions. In support of this it might be urged that in myxœdema it is common to find arterio-sclerosis and granular kidney, which may result from long-continued high blood pressure; but too much stress must not be laid on this, for the age of myxœdematous patients approaches that at which vascular degeneration is common, and in a certain number of cases of myxœdema the kidneys are healthy.

To return again to the question whether the hypothetical equilibrium between the depressor and pressor internal secretions may be upset by a deficiency of one, so that the other secretion has a paramount influence, Gioffredi's[35] conclusions are to the effect that normally certain organs and tissues—the liver, the blood, and to a less extent the voluntary muscles—transform adrenalin into an inactive product and so protect the body against the toxic results of an excess of adrenalin which might otherwise result. In order to effect this change the blood must be provided with oxygen and be alkaline, but those conditions are not necessary in the case of the liver and voluntary muscles. It is conceivable that such a compensatory mechanism might fail under the same conditions as those under which the thyroid secretion wanes, and that then a relative excess of adrenalin in the circulation would result. These considerations are highly speculative, but they may perhaps be forgiven because they bear in a somewhat remote manner on an important practical point—namely, the prevention and reduction of the rising arterial pressure of advancing years. For they suggest that the administration of thyroid extract might have this desired result and that it may prove to be the routine treatment. Iodides, which are so widely given in clinical medicine in order to lower blood pressure, have been shown to have no depressing effect on the heart or blood pressure (Stockman and Charteris[36]), but it is conceivable that they eventually lower blood pressure by stimulating the thyroid to an increased secretion.

II. *Alteration in quality.*—Of alterations in the quality of secretions very little is known if we except the gastric juice, but it is reasonable to believe that in the future this factor will attract attention and be shown to have most important pathological bearings. The adenomatous changes in the thyroid in exophthalmic goitre and in the pituitary body in acromegaly may safely be assumed to lead to an altered internal secretion, and so to have a causal bearing on the associated diseases. In the case of the adrenal medulla nothing is known as to any alteration in the quality of the secretion. It is somewhat

[27] Horsley: Clinical Journal, 1904, vol. xxiv., p 29.
[28] Janeway, T. C.: The Clinical Study of Blood Pressure, New York, 1904, p. 200.
[29] Josué, O.: Presse Médicale, Paris, 1903, p. 798.
[30] Pearce and Stanton: Journal of Experimental Medicine, 1906, vol viii., p. 74.
[31] Marrassini: Archives Italiennes de Biologie, Turin, 1901, vol. xlvi., p 82.
[32] Vaquez et Aubertin: Comptes Rendus de la Société de Biologie, Paris, 1907.
[33] Wiesel: Wiener Medicinisc Wochenschrift, 1907, vol. lvii., p. 674.
[34] Russell, W.: Brit. Med. Jour., 1904, vol. i., p. 1299.
[35] Gioffredi: Archivio de Farmacologia Sperimentale, 1907, p. 145.
[36] Stockman and Charteris: Brit. Med. Jour., 1901, vol. ii., p. 1520.

wild speculation, but it may be mentioned for what it is worth, that possibly intestinal toxins may so act on the cells of the adrenal medulla as to produce an internal secretion of such an abnormal character that the normal process of transformation of any excess into an inactive body, as suggested by Gioffredi, cannot be carried out by the tissues. The excess of such an abnormal adrenalin might conceivably cause high arterial pressure, arterio-sclerosis, and the allied morbid changes.

An Address
ON
THE PREVENTION OF MALARIA IN BRITISH POSSESSIONS, EGYPT, AND PARTS OF AMERICA.

Delivered in Section VII. of the Fourteenth International Congress of Hygiene and Demography held at Berlin, September, 1907,

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I.—PRELIMINARY.

ALMOST exactly ten years have now elapsed since the parasite of malaria was first detected in anophelines. This discovery, confirmed and amplified in many countries, suggested many methods for the prevention of the disease; but unfortunately, although science may indicate methods of prevention, local Governments are not always willing to undertake the trouble and expense required for the work. It is very advisable, then, to examine how much various Governments have actually done during this period in several parts of the world to preserve mankind from the vast amount of sickness and mortality occasioned by so widespread a malady and to consider what action may be taken to encourage more energetic efforts in the future. In attempting this task, however, I propose to confine my remarks to those countries in which the progress of events is best known to me—that is, principally to the tropics; but at the same time fear that I must give the history in considerable detail, without which my conclusions will not perhaps be as clear to others as they seem to be to myself.

In 1897–99 I was able to observe in several parts of India that numerous species of anophelines (in two of which I had previously cultivated the crescent-bearing parasites) breed mostly in natural collections of water lying upon the surface of the ground, and not, as many other common varieties of gnats do, in vessels and cisterns.[1] This fact at once suggested the full explanation of the laws known from the time of the ancients—that malaria is generally connected with terrestrial water, and may be reduced by drainage. But at the same time, while it re-established the old prophylaxis by drainage, it rendered it more simple, cheap, and yet precise. No longer driven to the expensive task of draining the whole expanse of a malarious area, we were now able to confine our operations, often with a great saving of money, only to those particular pools which are suitable for the larvæ of the insects, and which in many places I had already observed to be comparatively few and small. Consequently I did not hesitate to advise the Government of India (in a report dated Feb. 16th, 1899) to adopt this important measure in the principal malarious towns and military stations.[2 3] At the same time, as already empirically known, the use of mosquito nets during sleep was obviously a valuable means of personal prophylaxis. Shortly after writing this report I left India, and a few months later (July, 1899) proceeded with two colleagues, Dr. H. E. Annett and Mr. E. E. Austen, to the British colony of Sierra Leone, where we hoped to indicate more exactly the details of this perfected system of drainage-prophylaxis. We immediately ascertained by my methods previously elaborated in India that *Pyretophorus costalis* and *Myzomyia funesta* carry all the species of the parasites of man in that part of Africa; that these mosquitoes breed principally in small but numerous collections of water on the ground; and that it would be a comparatively easy task for the authorities, with all the resources at their disposal, to remove these breeding-places within the city of Freetown and thus to reduce the mosquitoes and the malaria together. In order to help them in this task we indicated for the first time the peculiar attitudes of the anopheline larvæ and adults which enable anyone to recognise them at sight; the special characters of the pools in which they breed; and the exact methods by which these pools should be dealt with; and we furnished them with a complete map of the principal breeding places. Our reports gave the original full exposition of the antimosquito prophylaxis of malaria, which since then has become the basis of all such work in many parts of the world.[4 5] Not being authorised, however, to undertake the work ourselves, all we could do was to advise, and we then returned to England hoping that the Government would act upon our suggestion.

In the meantime my Indian researches had been followed with enthusiasm in Germany and Italy. In the autumn of 1898 Koch and the Italian observers, who had made so many beautiful studies of the subject, were able to confirm and to extend the original investigations. They immediately suggested another great system of malaria-prophylaxis—that by quinine. It was argued that if all the persons in a community who suffer from malaria are sought out and efficiently treated with quinine the parasites will diminish so greatly within the community that the mosquitoes, however numerous they may be, will no longer become infected, and will so cease to convey the infection to healthy persons. Without delay, the Germans, led by Koch, and the Italians, led by Celli, sought to give practical effect to this logical suggestion. At the same time, Celli especially advocated the general protection of houses by means of screens of wire gauze.

It is not my function to-day to follow the labours of these distinguished workers. The problem in malarious British colonies, which are mostly tropical and inhabited by dark races, is not the same as in Italy—a fact which is often forgotten by academical sanitarians. Such races cannot easily be persuaded to submit to continued medication by quinine and are much too poor to provide screens for their houses, and even Europeans in the tropics frequently reject both measures with obstinacy. On the other hand, drainage-prophylaxis demands no such compliance from the public. As I have frequently pointed out,[6] local authorities can drain, or otherwise treat, anopheline pools without asking the consent of any one. The people are not required to take any drug for months, or to pay for expensive appliances to their windows. Moreover, mosquito reduction tends to remove yellow fever and filariasis as well as malaria, banishes a source of constant personal irritation, and, no less important, compels local sanitary departments to keep a close watch on all parts of the area in their charge. On the other hand, of course, we cannot expect drainage to be undertaken everywhere, in the open fields or the wilderness; it is principally applicable to towns—that is, to places where the money spent upon it is likely to benefit the largest number of people; for the camp, the farm, the plantation, the isolated house, and the petty hamlet the other measures must frequently be fallen back upon. As a rule, however, for tropical towns mosquito reduction where it is possible has always promised to be the most useful and, in the end, the most economical system of all; and, of course, the other measures may often be adopted, at least partially, in addition. Thus the ideal procedure for towns in the tropics consists (1) in the removal of mosquito-breeding waters; (2) in the treatment of old cases of malaria with quinine; and (3) in the protection, as an additional safeguard, of hospitals, barracks, jails, and as many houses as possible with wire gauze. To these we must add, as insisted upon by Stephens and Christophers, the principle of segregation for Europeans.

But however desirable mosquito reduction seemed to be, my proposals to adopt it were everywhere met at first with

[1] Ross: Instructions for the Prevention of Malarial Fever, Liverpool School of Tropical Medicine, Memoir I., 1899; and Researches on Malaria, Nobel publication, 1902, Stockholm; German translation, Gustav Fischer, Jena.
[2] Ibid.: Extermination of Malaria, Indian Medical Gazette, July, 1899.
[3] Ibid.: The Possibility of Extirpating Malaria from Certain Localities by a New Method, Brit. Med. Jour., July 1st, 1899.
[4] Correspondent (Ross): The Malaria Expedition to Sierra Leone, Brit. Med. Jour., Sept. 9th, 16th, and 20th, and Oct. 14th, 1899.
[5] Ross Annett, Austen: Report of the Malaria Expedition to West Africa, Liverpool School of Tropical Medicine, Memoir II., 1900.
[6] Ross: Mosquito Brigades. George Philip and Son, London, 1902.

objections. One objection was that the breeding waters must be so numerous that their suppression would be too costly an undertaking, even in towns; and those who held this view forgot that to exsiccate a town would generally be a far less formidable engineering task than to give it a pipe water-supply or a sewerage system, while in dry climates it might prove a very easy task indeed. Another objection, and a still more extraordinary one, was that local mosquito reduction would be useless owing to the immigration of mosquitoes from outside. This is as much as to say that the population of an area would not be decreased by the abolition of the birth-rate within that area; but in spite of the unreasonableness of the objection it was repeated everywhere for years and did not disappear until it was dealt with mathematically, first by myself,[7] and then more fully by Professor Karl Pearson and Mr. J. Blakeman.[8] Repeated over and over again, in spite of the clearest disproof, these objections have done much to check anti-malaria work throughout the world and have also been often used, I fear, to cover the inertia or indifference of officials.

II.—CAMPAIGNS IN WEST AFRICA.

I will now proceed to describe briefly the progress of events as known to me. As already stated, in 1899 I visited Sierra Leone with two colleagues and advised the authorities exactly regarding the best means of reducing malaria in the capital, Freetown. Immediately after this visit the Liverpool School of Tropical Medicine despatched, on my advice, a number of gentlemen, Dr. R. Fielding-Ould, Dr. Annett, Dr. J. E. Dutton, and Dr. J. H. Elliott, to various West African Colonies (British Gambia, Sierra Leone, Gold Coast, Lagos, and Nigeria) in order to make similar studies. Later the Royal Society sent, also on my advice, Dr. J. W. W. Stephens and Captain S. R. Christophers, I.M.S., so that by 1901 a fairly accurate survey of the malaria was made in many towns along that deadly coast and measures for prevention were formulated.[9] In most cases it was comparatively easy to take these measures. Thus in Sierra Leone our suggestions of 1899 were not really difficult. The town contains only about 30,000 inhabitants; and though, owing to the large rainfall, to a rocky substratum to the soil, to numerous flat areas, and to the existence of many badly-constructed surface drains and gutters, there were many anopheline pools, yet almost all of these were so small that a little cutting or filling up with gravel or concrete, would suffice for their abolition. I suppose that £20,000 would have paid for the exsiccation of the whole town, with an annual maintenance expenditure of, say, £500; but a great deal of good could have doubtless been effected with much smaller funds. For example, many of the holes in the soil, which were the principal source of the anophelines, could have easily been filled up by small gangs of labourers working constantly under the local municipal engineering and sanitary departments, without any elaborate general drainage scheme. Considering that the whole prosperity of the place, long known as the "white man's grave," had been checked by the malaria, we had reason to hope that at least some serious consideration would be given to our suggestions.

For a year and a half after our departure, however, little appears to have been done. We heard that one man had been employed to treat the pools but that his services had been dispensed with later. At this time the objections to prophylaxis by mosquito reduction were being so loudly uttered by those who had not sufficiently considered the matter that I felt that the whole of this invaluable sanitary policy was in imminent danger of being lost to the world, in spite of all the arguments which had been used in favour of it. For example, so good an observer as Rogers[10] said in 1901 that "Very few authorities now consider it feasible to reduce malaria materially by the destruction of anopheles"; and even at the last meeting of this Congress[11] Celli remarked that while the laboratory experiments of himself and Casagrandi for the destruction of mosquitoes were encouraging, yet "in the wide field of practice the difficulties were such that we could scarcely by this means, unless in exceptional cases, obtain in our country the suppression of malaria." Fortunately at that moment (early in 1901) a Scotch philanthropist offered me £2000 to defray the expenses of giving an object-lesson in the methods of mosquito reduction. This generous gift, augmented by several friends to the cause, was accepted with gladness and gratitude, and I determined to return at once to Sierra Leone and to commence, myself, the measures which I had previously recommended. Of course it was not possible that with £2000 I could actually succeed in ridding Freetown of malaria, but I hoped at least to demonstrate the feasibility of the measures, and trusted that when they were once begun the local government would not hesitate to continue them. Accordingly in June, 1901, I left England for Freetown with Dr. M. Logan Taylor who was to carry out the work under my general instructions.

On arrival we found everything in nearly the same condition as when I had left the Colony two years previously. Scarcely any of the breeding-pools had been done away with; owing to faulty sanitation the backyards of the houses were filled with rubbish, such as broken bottles and old tins, in which innumerable mosquitoes were propagating; the hospitals were not protected with gauze; general quinine prophylaxis was not insisted upon, even among officials; and there were no trustworthy statistics to measure the actual amount of malaria present. Dr. Taylor attacked the work with great energy, employing occasionally over 50 men at a time, to which the local authorities contributed a gang of 12 men and carts and implements. A large number of breeding-pools were rapidly dealt with; innumerable cartloads of rubbish were removed from the houses; and the people were advertised of the dangers caused by mosquitoes. Although there is no known method for estimating exactly the number of mosquitoes within a given area, we felt ourselves justified in concluding from general observation that these measures had produced a marked diminution in the insects. Dr. C. W. Daniels of the London School of Tropical Medicine inspected the work shortly after its commencement and reported (Oct. 1st, 1901): "In my opinion, already your efforts have been crowned with a large degree of success, as there has been a noteworthy diminution in the number of the first two genera" (*Anopheles* and *Stegomyia*) "found in the houses. The number of breeding grounds has been enormously diminished."[12] Dr. Taylor continued the work for the whole of the next year under the varying conditions of the wet and dry seasons and used the money at his disposal to its fullest advantage. But, as I have said, with our limited funds, our attempt was intended merely as a commencement, which, it was hoped, would be followed up energetically by the local authorities with the much greater resources which they possessed—and I stated this clearly in my report on the affair. I have no doubt that if this had been done malaria would have been practically banished from the town from that date. Unfortunately, as Dr. Taylor's time grew to a conclusion, he was obliged to report unfavourably upon this point; and we therefore determined with regret to put an end to our efforts in that colony.[13] A year later the authorities roused themselves sufficiently to ask for a public inquiry into the whole matter; but as we objected that they had probably allowed all his work to fall into abeyance in the interval the proposal was quashed. At this time, moreover, the brilliant campaign at Ismailia began to develop, and there was no longer any need for private individuals to sacrifice their time and their health in the attempt to help those who were obviously not very anxious to help themselves.

In the meantime the new ideas had been gradually gaining ground, and public prophylaxis against malaria had been started with more or less vigour in several localities. Passing over, according to my intention, the German and Italian work, I will commence with that of Sir William MacGregor, M.D., Governor of Lagos, to whom belongs the honour of having been the first British governor to comprehend the full importance of recent discoveries and to act upon them. As early as 1900 he made a careful examination of the evidence upon which they were based; and, being himself a medical man well skilled in many sciences, became quickly convinced and then determined to take action at once. Lagos is an important town of West Africa, built in the midst of

[7] Ibid.: The Logical Basis of the Sanitary Policy of Mosquito Reduction, Congress of Arts and Science, St. Louis, U.S., 1904, and Brit. Med. Jour., May 13th, 1905.

[8] Pearson and Blakeman: A Mathematical Theory of Random Migration, Drapers' Company Research Memoirs, University of London. Dulau and Co., London, 1906.

[9] Various Authors: Liverpool School of Tropical Medicine, Memoirs II., III., IV.; and Royal Society Reports to the Malaria Committee, July 6th and August 15th, 1900.

[10] Rogers: Journal of Hygiene, October, 1901, p. 415.

[11] Celli: Thirteenth International Congress of Hygiene and Demography at Brussels, 1903.

[12] Ross: First Progress Report of the Campaign against Mosquitoes in Sierra Leone, Liverpool School of Tropical Medicine, Memoir V., Part I., Oct. 15th, 1901. With letter by Daniels.

[13] Taylor: Ibid., Part II., Sept. 15th, 1902.

lagoons and marshes and possessing a large negro population. Ably seconded by his principal medical officer, Mr. W. H. W. Strachan, Sir William MacGregor commenced by instituting numerous public lectures on the subject, and by founding a ladies' league, the object of which was to reduce the large infantile mortality by quinine. At the same time he issued an order by which the prophylactic use of the drug was made compulsory for all public servants, and led the way by taking it with regularity himself. Efforts were then made to induce all the wealthier inhabitants to screen their houses, and most of the public buildings were shortly guarded in this manner, at least partially. Next, turning his attention to drainage-prophylaxis, he filled up marshes, and dealt with the shallow margins of lakes and lagoons in which the mosquitoes bred most readily. Similar measures were ordered along the line of railway into the interior, and when I visited the colony in 1901 I was a witness of the vigour and capacity with which the work was being conducted. Unfortunately his health now began to break down and his services were soon lost to the tropics, where his great knowledge and his warm enthusiasm for the high cause of sanitation had promised to do so much. At his departure that cause suffered a blow from which it has not yet recovered.[14]

Except in Lagos, little had yet been attempted in the other West African colonies, in spite of the surveys already mentioned. But when I revisited Sierra Leone in 1901 I was able to extend my tour not only to Lagos but also to the Gold Coast and to the Gambia, and to suggest in these latter colonies campaigns similar to that projected in Freetown. To start the work, in 1902 Dr. Taylor was sent to the Gold Coast[15] and Dr. Dutton to the Gambia,[16] so that in 1903 antimalaria measures were at least commenced in all these colonies; and I hoped that a few more years would witness the salvation of that rich but unhealthy land from the plague which had so long oppressed it. I may add that in 1904, by the generosity of King Leopold, Dr. Dutton and Dr. J. L. Todd were sent to the Congo Free State to investigate and to advise there also.[17]

Unfortunately, I cannot say definitely how far our hopes have been realised. The official reports and figures[18] are not sufficiently exact and copious to enable us to judge with certainty either regarding the measures which have been taken by local Governments or of the results, if any, which have followed. It is stated[19] that malaria fever has decreased among the British troops in West Africa during 1905. The admission-rate was only 59 per cent., against 84 per cent. in 1904 and an average of 139 per cent. for the eight preceding years; and the senior medical officer remarks that the improvement is "attributed to the antimalaria measures adopted during the last three years." But it is characteristic of these very incomplete publications that we cannot even ascertain where exactly the troops were stationed. On the other hand, we hear frequently from merchants and travellers in West Africa that the general health of Europeans has greatly improved, as shown by the decrease of death and invaliding among employees, miners, &c. For example, there has been a remarkable change, to judge from statistics kindly furnished to me by Mr. F. Shelford, in the health of men working on the Lagos railway. In the past it frequently happened that the percentage of days spent on the sick list by men employed on railway construction in West Africa was as high as even 10 or more per cent. During 1905 and 1906, however, the figure has been down as low as 1·12 per cent. and was always under 2 per cent. (on the "extensions").

III.—CAMPAIGN AT ISMAILIA.

Let us now proceed to consider more decisive campaigns elsewhere. But first let me refer to that great scientific discovery which gave so much indirect assistance to the prevention of malaria—the discovery of Finlay, Carter, Reed, Carrol, Lazear, Agramonte, Ross, and others, that yellow fever also is carried by mosquitoes. It is true that, though both diseases are mosquito-borne, their prophylaxis is widely different owing to the different habits of the stegomyia and the anophelines, to the rapidity of immunity in yellow fever, and to its resistance to quinine. Nevertheless, the case of the one helped the case of the other. No sooner was the stegomyia definitely incriminated at the end of 1900 than the American Government of Cuba, under General Leonard Wood, himself a medical man, set to work with a promptitude, energy, and intelligence not always visible in other Governments to use the facts which science had just placed in their hands. Except for a slight recent recrudescence, which we hope will shortly be conquered, the disease was practically swept out of the island from that date. This event occurred in 1901, just at the time when Dr. Taylor and myself were commencing our attempts at Sierra Leone. Owing to the examples so set similar campaigns now began to be started in various parts of the world. Perhaps the most classical and brilliant one was that of Ismailia commenced in 1902, which gave a complete and perfect demonstration of the possibility of banishing malaria and mosquitoes together.

The town of Ismailia was founded by the great Ferdinand de Lesseps in 1862 at a little distance from the middle point of the Suez Canal and close to the Salt Lake, Timsa. Though built in the midst of the desert, which surrounds it everywhere with its ridges of white sand like the undulations of a vast snowfield, it has nevertheless now grown to contain about 8000 inhabitants, most of whom are employees of the Suez Canal Company. Supplied with fresh water by means of a canal from the Nile, it possesses many good houses, gardens, and well-appointed streets, kept in admirable order by the officials of the company under the able and energetic President, Prince Auguste d'Arenberg, who himself resides here for many months every year. Immediately after the construction of the freshwater canal in 1877 malaria appeared for the first time in the town, which had been previously noted for its salubrity. The cases gradually increased in number until in 1886 almost all the inhabitants suffered from fever. In 1901 the President, having recognised the new discoveries, determined to employ them against this troublesome epidemic and commenced by sending a member of his highly competent medical staff, Dr. A. Pressat, to Italy to study the subject. Early next year, however, shortly after the commencement of the operations at Freetown, he invited me to go to Ismailia to advise upon the best means of attacking the disease. I arrived there in September, 1902, with Sir William MacGregor, who did me the honour to accompany me, and with Dr. Pressat on his return from Italy.[20] On our arrival we found all the officials of the company keenly alive to the importance of the work. They had already detected the anophelines in the town, had urged the general employment of mosquito nets, and had commenced an active quinine prophylaxis. On the other hand, the town was still swarming with mosquitoes. Even in the house of the President, where we were lodged, there were multitudes of culex, which we showed were being bred in the well-constructed cesspit under the house; while abundance of anophelines were found in the houses of the employees and were evidently carrying the disease everywhere in spite of the mosquito nets and the segregation of the Europeans. I felt, therefore, that here, as in other places where I had studied the subject, we should have to introduce the radical method of mosquito reduction if we wished for complete results, and I reported strongly in favour of this course. As Dr. Pressat has said, we formed "the conviction that we should establish for Ismailia a plan of campaign sensibly different from that which we had seen followed in Italy, where the campaign against mosquitoes occupied only a secondary rank—so that this destruction appeared to us to be the capital article of our programme" ([21], p. 130). We found the larvæ of the anophelines at once in various collections of water, principally in some small brackish marshes in the sand and some waters of irrigation, but happily not in the main freshwater canal, where small fish destroyed them. The campaign, conducted with intelligence and energy, presented no great difficulty. The marshes were filled up with sand, the irrigation channels were deepened or treated with oil, while the cesspits were soon rendered uninhabitable for the larvæ of culex. As Dr.

[14] MacGregor: Notes on Anti-Malarial Measures now being taken in Lagos, Brit. Med. Jour., 1901. Also Strachan, Brit. Med. Jour., Sept. 17th, 1904.
[15] Taylor: Report on the Sanitary Conditions of Cape Coast Town, Liverpool School of Tropical Medicine, Memoir VIII., 1902.
[16] Dutton: Report of the Malaria Expedition to the Gambia, Liverpool School of Tropical Medicine, Memoir X., 1902.
[17] Various Authors: Liverpool School of Tropical Medicine, Memoirs XIV., XV., and XX.
[18] Colonial Reports, Annual. Wyman and Sons, London.
[19] Army Medical Department. Report for 1905, p. 138. Harrison and Sons, London.
[20] Ross: Report on Malaria at Ismailia and Suez, Liverpool School of Tropical Medicine, Memoir IX., 1903.
[21] Pressat: Le Paludisme et les Moustiques. Masson et Cie, Paris, 1905.

Pressat has said,[22] he was able to effect the preliminary work with a "mosquito brigade" of only four men, "qui a tout fait." Although hundreds of men were employed later for large permanent works, this was only after the mosquitoes had already disappeared "grace à notre brigade de quatre hommes." I may perhaps be pardoned for dwelling on this fact because it fully justifies the advice which I had given more than three years previously but which had been met everywhere with scepticism. The results were most striking. It should be remembered that as nearly all the inhabitants of Ismailia were employees of the Suez Canal Company, and as no other fever was prevalent in the town, exact statistics for many years had been possible. I give the following approximate figures from Dr. Pressat's works from the time when malaria first appeared in 1877 to 1905 :—

Years.	Cases of malaria.	Years.	Cases of malaria.	Years.	Cases of malaria.
1877	300	1887	1800	1897	2089
1878	400	1888	1400	1898	1545
1879	500	1889	1450	1899	1784
1880	400	1890	1900	1900	2284
1881	450	1891	2500	1901	1990
1882	480	1892	2050	1902	1561
1883	550	1893	1750	1903	214
1884	900	1894	1100	1904	90
1885	2000	1895	1350	1905	37
1886	2300	1896	1150		

For more exact figures I must refer to Dr. Pressat's works. Since 1904 nearly all the cases have been relapses among persons previously infected, and last year the company officially reported that "toute trace de paludisme a disparu d'Ismailia." Of course, the treatment of old cases has constantly proceeded parallel to the antimosquito campaign. But the fortunate inhabitants have been relieved not only of malaria but of the constant annoyance caused by the insects. In 1902 we were constantly being bitten in the houses. Now, as many visitors to Ismailia have testified,[23] one can sleep there without nets. This does not imply that the insects are absolutely unknown in the town, but only that their numbers have been very greatly reduced. Absolute extirpation is scarcely possible without bonification over a very wide area, but, as mathematically shown, reduction to a small percentage is much more feasible, and there are evident logical reasons for supposing that the amount of an insect-borne disease must ultimately vary *cæteris paribus* as the square of the number of the insects. The cost of the work has been officially reported[24] as being about 50,000 francs for the original drainage and filling up of the pools, with an annual expenditure of 18,300 francs for the mosquito brigade, oil, maintenance, &c. This amounts to an initial expenditure of about 6·25 francs and an annual expenditure of about 2·3 francs per head of population—a small price to pay for the benefits given.

It has been said by the opponents of mosquito reduction that the success at Ismailia was not real, but merely consisted in the statistical transfer of cases from the heading of malaria to that of other fevers consequent on better diagnosis. This is untrue as there is no other fever there. It has also been said that the success was due to the exceptionally easy conditions at Ismailia. True, the conditions are not so difficult as in places like Panama and Sierra Leone, but I have seen many areas where they were quite as easy as in Ismailia but where nothing whatever has been done. The success at Ismailia is absolutely unquestionable. It is due chiefly to mosquito reduction and also largely to cinchonisation. We owe it entirely to the intelligence and capacity of Prince d'Arenberg and his excellent staff.

IV.—CAMPAIGNS AT KLANG AND PORT SWETTENHAM.

Commenced even before the campaign at Ismailia, as ably conducted and almost as decisive, the work at Klang and Port Swettenham in the Federated Malay States is an equally distinguished example of the radical method of malaria reduction. Klang is a town of 3576 inhabitants (in 1901), situated on the banks of the river of the same name in the State of Selangor, on a flat, swampy area lying between the river and a semicircle of low hills. In September, 1901, as the navigation of the river to Klang presented difficulties, a new port called Port Swettenham was opened five miles down the river from Klang on an area reclaimed from mangrove swamp. The population of the two settlements together was about 4000 in 1903, while that scattered through the surrounding district was about 14,000. The rainfall averages about 100 inches (three metres) a year. The full history of the campaigns in these two towns is given in the excellent papers by Dr. M. Watson, the district surgeon, and Mr. E. A. O. Travers[25], [26], [27], [28], the State surgeon. In the latter part of 1901 malaria became very serious in both towns and, according to Dr. Watson, perhaps not more than three houses in the whole of Klang escaped infection, while the workmen at Port Swettenham began to leave the place. Dr. Watson immediately set himself to collect statistics, to observe the local anophelines, and to take the preliminary steps for the campaign. Supported by Mr. Travers and the Sanitary Board and by the intelligence and liberality of the Government, he soon obtained realisation of the recommendations of himself and his colleagues made on the lines laid down by me ([26], p. 349). At Klang work was commenced in 1901 by extensive clearing of undergrowth, followed by drainage in the next year. The swamps in the town were rapidly filled in and a contour drain to intercept the inflow from the surrounding hills was cut. At Port Swettenham forest and mangrove swamp were felled and a complete drainage scheme, prepared by the State engineer, was carried out. In both towns, pending completion of the drainage, mosquito brigades were appointed; and their employment was extended subsequently under the name of "town gardeners." When the epidemic had already begun to subside (p. 353) wire gauze was supplied to many of the houses and an active quinine distribution was commenced. All the measures have been well maintained since then.

As regards cost, Mr. Travers and Dr. Watson state that at Klang it amounted at the end of 1905 to a total of £3100, with an annual expenditure of £210 for town gardeners and of £60 for clearing drains. For this money 332 acres (134 hectares) have been dealt with, including virgin jungle, dense secondary growth, and swamp. At Port Swettenham the total cost has been £7000 to the end of 1905, with an annual unkeep of £140. For this 110 acres (45 hectares) of mangrove swamp were drained, and a considerable area has been levelled, partly to provide building sites. The cost per head of population has therefore amounted to about £1 4*s.* up to the end of 1905—a very small charge considering the heavy rainfall and the dense vegetation of the country. These towns did not possess the exact statistics of Ismailia for a long period previous to the campaign. Great credit is therefore due to Dr. Watson for the care and skill with which he has determined the results of his measures.[27] The following table is compiled from the figures given by him :—

Results of the Antimalaria Campaign in Klang and Port Swettenham.
(From the *Journal of Tropical Medicine*, July 2nd, 1906, by Mr. Travers and Dr. Watson.)

Population of Klang and Port Swettenham about 4000 in 1901 and now largely increased. District population 14,000 in 1901. Antimalaria campaign commenced (only in Klang and Port Swettenham) in 1902.

1.—*Cases of Malaria admitted to Klang Hospital from the Two Towns compared with those admitted from District.*

Years	1901	1902	1903	1904	1905
Towns	610	199	69	32	23
District	197	204	150	266	353

2.—*Deaths in Klang and Port Swettenham.*

Years	1900	1901	1902	1903	1904	1905
Fever	259	368	59	46	48	45
Other diseases ...	215	214	85	69	74	68

3.—*Deaths Registered in District, excluding Towns.*

Years	1900	1901	1902	1903	1904	1905
Fever	173	266	227	230	286	351
Other diseases ...	133	150	176	198	204	271

[22] Pressat: Prophylaxie du Paludisme dans l'Isthme de Suez, La Presse Médicale, 30 Juillet, 1904.
[23] Boyce: The Antimalaria Measures at Ismailia, Liverpool School of Tropical Medicine, 1904.
[24] Official Report of the Compagnie Universelle du Canal Maritime de Suez. Suppression du Paludisme à Ismailia, 1906.
[25] Travers: An Account of Antimalaria Work ..... in Selangor ....., Journal of Tropical Medicine, Sept. 15th, 1903.
[26] Watson: The Effect of Drainage and Other Measures on the Malaria of Klang, Federated Malay States, Journal of Tropical Medicine, Nov. 16th and Dec. 1st, 1903.
[27] Ibid.: Second Report, Journal of Tropical Medicine, April 1st, 1905.
[28] Travers and Watson: A Further Report ....., Journal of Tropical Medicine, July 2nd, 1906.

4.—*Infected Children in Towns and District.*

November and December, 1904.

	Klang.	Port Swettenham.	District.
Children examined	173	87	298
Children infected	1	1	101

November and December, 1905.

Children examined	119	76	247
Children infected	1	0	59

5.—*Sick Certificates and Sick Leave Granted to Government Employees.*

(Numbering 176 in 1901 and 281 in 1904.)

Years	1901	1902	1903	1904	1905
Certificates	236	40	23	14	4
Days of leave	1026	198	73	71	30

To these figures Dr. Watson adds[27] that so great has been the reduction of the malaria that he has lost a large part of his private practice as District Medical Officer. Regarding the reduction of mosquitoes he remarks[27]: "A definite improvement in the health of Klang was evident when only the swamps nearest to the main groups of houses had been dealt with, and while other swamps within the town were still untouched. The mosquitoes from these did not appear to travel any distance, and there has been no evidence of dangerous immigration of anophelines from the extensive breeding-places which, until the middle of 1904, existed just outside the town boundary, and some of which still remain. Yet the species breeding in these swamps were identical with those breeding within the town."

The objection raised against the campaign at Ismailia—namely, that it possesses a dry soil and climate—cannot be raised against the well-conducted campaigns in the Federated Malay States, and the world owes a debt of gratitude to the Government of these States, to Mr. Travers, and especially to Dr. Watson, for the fine example which they have set.

V.—CAMPAIGN AT HONG-KONG.

One of the earliest and best of the campaigns in British territory. The city of Victoria, usually called Hong-Kong, runs for nearly five miles along the north of the island of that name at the mouth of the Canton river in South-East China. The island, 11 miles long and from two to five miles broad, consists of a broken ridge of hills, rising to nearly 2000 feet, and the city is built on a hill sloping down to the water, some of the terraces and houses being 500 feet above sea level. There is also a large residential district on the mountains reached by a cable tramway. The soil is granitic. All along the face of the hill on which Victoria is built there are beds of streams, known as "nullas," which used to swarm with anopheline larvæ. The population of the colony was 377,850 in 1905, of which 10,835 were whites (nearly half belonging to the British army and navy). The rainfall is from 70 to 80 inches a year. Malaria has been always very prevalent here, and I remember that in 1881 the colony was cited as an example of the telluric miasma due to decaying granite. The first researches on the new lines were commenced as early as May, 1901, by Dr. J. C. Thomson,[29] who undertook an exhaustive study of the mosquitoes and their breeding-places. He examined over 32,000 specimens, of which he found about 4 per cent. to be anophelines, and in November advised an active antimalaria campaign by drainage, clearing of jungle, "training" of the nullas, the use of wire gauze, oiling pools, and quinine prophylaxis. As seen by his excellent papers,[30] his recommendations were not of a general nature, but were particular, practical, and exact. These recommendations were rapidly acted upon by the Government. Since 1901 all the nullas or water-courses within and near the city were "trained"—that is, rendered so smooth and even that the anophelines could no longer breed in them; and much similar work was done wherever most needed elsewhere by training water-courses, buying up rice fields, and so on. The details of the campaign are so numerous that it is impossible to give them here. They will be found in the publications given in the bibliography and in a good paper by Mr. J. M. Young,[31] who took part in the early stages of the work. The results are given in the annual sanitary reports of the colony and in a recent address by the medical officer of health, Dr. W. Francis Clark.[32] Dr. Thomson informs me that before estimating them it is necessary to remember that malaria can never become extinct in Hong-Kong owing to the fact that some 3000 to 4000 natives come and go from and to the country districts every day, and that a number of these will remain infected in spite of all local measures. Nevertheless the figures show a rapid diminution both in the admission and in the death-rates.

Malaria Statistics of Two Large Hospitals.

Years	1897	1898	1899	1900	1901	1902	1903	1904	1905
Admissions	1021	865	780	1220	1294	752	568	433	419
Deaths	197	126	63	163	132	128	63	58	54

Admission Rate of Police for Malaria.

Years...	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905
Admission %	32	25	19	31	42	44	19	18	11	12

Deaths from Malaria.

Years...	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905
Population	239,419	—	—	—	—	—	—	—	—	377,850
Total deaths ...	533	554	530	546	555	574	425	300	301	285
Deaths in city (Chinese only)	290	302	280	218	242	281	189	152	90	87

The official sanitary reports give similar figures. The improvements have, of course, varied much in different localities. Thus in 1900 the western end of Bonham-road used to be one of the worst districts. Now in 1905 it is reported not to have sent a single case to the Government Civil Hospital.[33]

With regard to cost, Dr. Clark reports that up to the end of 1905 the Government had expended about £5000 on anti-malaria measures, and estimates that £6500 would be spent by the end of 1906—a small amount to pay for the good that has been done. The campaign in such a thickly populated district must be difficult. A larger expenditure would probably have produced still more marked results and it would have been useful to estimate the endemic index in various parts of the area. I am much indebted to Dr. Thomson and also to Mr. J. Bell for the detailed information which they have been so kind as to send me but which I have no space to give more fully.

VI.—CAMPAIGNS IN INDIA.

In 1898 I had hoped that India would have led the way in the matter of malaria prevention. Long previously the Government had done very well by issuing cheap quinine in malarious localities and by making several local inquiries. The disease existed more or less throughout the country and in some military stations caused an admission-rate of several thousands per mille, while in other places it was an extremely serious detriment to development. There were numbers of places as dry and easy to deal with as Ismailia, while few presented worse difficulties than the towns in the Malay States. The military stations were under the complete control of the authorities, and experienced administrators, sanitary officers, and engineers abounded everywhere. So far as I can ascertain, however, little or nothing was done for several years. The first active campaign seems to have been inaugurated in 1902 as an experiment at Mian Mir in the Punjab, but was most unfortunately a failure, at least at first.

Mian Mir.—This is a large cantonment or garrison town situated on the flat and hot plains near Lahore. Constructed in 1851–52 in the midst of what was then an arid and treeless desert, it was later well watered by irrigation canals. The result was that malaria began to prevail to such an extent that in 1879 the annual admission-rate for fevers rose to 3427 per 1000 of the troops and the place was called "the white man's grave." In 1901, however, Dr. Stephens and Captain Christophers of the Malaria Commission of the Royal Society were sent on my suggestion to India and investigated the mosquitoes of Mian Mir amongst other places.[34] In April, 1902, practical operations were commenced, evidently on the Sierra Leone model, by Captain S. P. James, I.M.S., and afterwards by Captain Christophers. The results, however, were not only negative but were stated in such a way by these observers as to suggest that mosquito reduction was generally a difficult if not impossible task.[35]

[29] Thomson: The Distribution of Anopheles and Culex at Hong-Kong, Brit. Med. Jour., 1901, vol. i., pp. 749 and 1379.

[30] Ibid.: Malaria Prevention in Hong-Kong. Official report, containing many letters, 1900–1903.

[31] Young: The Prevention of Malaria at Hong-Kong, Brit. Med. Jour., 1901, vol. ii., p. 683.

[32] Clark: An Address on the Prevention of Malaria in Hong-Kong. Noronha and Co., Hong-Kong, 1906.

[33] Reports on the Health and Sanitary Condition of the Colony of Hong-Kong, 1900–1905, p. 64.

[34] Stephens and Christophers and James: Royal Society, Reports to the Malarial Committee, 7th and 8th Series, 1902, 1903. Harrison and Sons, London.

[35] James and Christophers: Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. First and Second Reports of the Anti Malarial Operations at Mian Mir, No. 6, 1903, and No. 9, 1904.

The writers had evidently failed to grasp the subject, for they attempted an important work without adequate expenditure and made other mistakes. Their reports were exhaustively criticised by Giles, Sewell, and myself,[36] [37] but they nevertheless retarded Indian antimalarial efforts for some time.

Since then, to judge from accounts in the Indian sanitary reports[38] and from details very kindly furnished to me by Surgeon-General A. Scott Reid, I.M.S., and Colonel H. D. Rowan, R.A.M.C., wider measures have been attended with better results. Since 1905 the following measures have been adopted. The principal irrigation canal and its branches were closed within a radius of about 800 yards of the barracks and officers' quarters. The surface of the ground was everywhere levelled and the drainage improved so that even after a heavy fall of rain not a single collection of water will be found after 72 hours (except a large pit which is in course of being filled in). The whole cantonment was divided into six areas, each under a medical officer, and each area is visited once a week by a strong "mosquito brigade." All wells are protected and those used for irrigation purposes are oiled once a week. Quinine is administered twice a week on consecutive days from June to November under medical supervision. Residents are held strictly responsible for the condition of their compound (gardens). No undergrowth or rubbish is allowed, nor pits for the reception of sullage water; and other general sanitary improvements have been made.

In estimating the results Colonel Rowan remarks that the statistics of mortality in the civil population cannot be relied upon and that there are difficulties in connexion even with those of the troops. Since 1905 cases have been returned as malaria only when a microscopic diagnosis has been made and are otherwise given under the heading of simple continued fever (exclusive, of course, of typhoid or undulant fever); but he remarks that this is not quite fair amongst men who are getting quinine with such regularity. He thinks it best to take the admission-rates for malaria and simple continued fever together, and these show a considerable decline. For the five years 1898–1902, the average annual admission-rate per 1000 of the British (white) troops was about 900. In 1903 it was nearly 1100; but in 1904, 1905, and 1906 it fell to about 600, 400, and 460 respectively. The general admission-rates for all disease among these troops were 1950 in 1898–1902, 1800 in 1903, 1350 in 1904, 1350 in 1905, and 1240 in 1906. In a native cavalry regiment which has remained in Mian Mir for the whole of 1904, 1905, and 1906, the admission-rates for malaria per 1000 have been 242, 108, and 43 respectively. On the whole, he is satisfied with the success of the campaign, but thinks it too early to form an estimate of the full extent of the gains. I am told also that the fact that the troops have to serve frequently at Fort Lahore, a very unhealthy place, does much to distort the figures. But the measures are reported ([18], p. 231) to "have undoubtedly contributed to the decreased prevalence of anopheline mosquitoes and their larvæ during the year." Colonel Rowan tells me that culex are much less common and that anophelines "have become positively rare," although a native is specially employed to find them if possible.

Progress of events.—In January, 1902, a conference of medical men on the subject of malaria was held at Nagpur. It drew up an excellent set of rules for antimalarial sanitation, but so far as I can gather no general orders were issued to make the rules compulsory. Gradually, however, several stations began to adopt measures on a small scale, chiefly, I think, owing to the initiative of individual medical officers, though the results at Mian Mir were frequently used to discourage them. Apart from practical work numerous good articles on mosquitoes and their habits appeared.[39] [40] It is difficult to give any adequate account of the campaigns because the full facts are not obtainable, but I will refer briefly to the following.

Major W. J. Buchanan, I.M.S., Inspector-General of Prisons in Bengal, has been good enough to give me some details of his campaign at Buxor Central Jail. Buxor, in Bengal, is full of malaria, attributed to the large number of small irrigation canals. The jail is a good one, well situated and drained, but it has one irrigation canal entering it in order to supply water. In June, 1904, Major Buchanan had the canal banks close cut, cleared, and tarred, and gave similar treatment to certain tanks. All pools, puddles, and hollows were filled up and land in a neighbouring village was acquired for the purpose, while quinine was given every Saturday and Sunday during the malaria season. The results among the prisoners (averaging about 1400) were:—

Years...	1902	1903	1904	1905	1906
Admissions for malaria	2091	2455	1267	1207	1191

It should be remembered that prisoners are constantly being changed, new and infected criminals being frequently introduced from outside. Major Buchanan adds that he is adopting similar measures in all jails. It is difficult to find mosquito larvæ in any of the better situated ones. He approves of quinine prophylaxis in addition.

In the Madras Presidency Colonel W. G. King, I.M.S., the Sanitary Commissioner, early took interest in antimalaria work and commenced to organise mosquito brigades, and in 1904 the Government was reported to have taken active steps in this direction. It accepted Colonel King's scheme, suggested a suitable organisation, and advised municipal councils to meet the expenditure required.[39] I have not yet seen any description of the results.

Captain C. A. Sprawson, I.M.S., has been kind enough to give me many details of the work at Jhansi, a town of 12,457 inhabitants in Bundelkand. Operations appear to have been started at the beginning of the rains in 1906. The cantonment was divided into two areas, one for the white troops and one for the native troops, each division being placed under the appropriate medical officers under whom mosquito brigades were appointed. The native quarter was also looked after. Instruction regarding malaria was made public. The money allotted for the actual work, however, appears to have been rather small, as it was not allowed to exceed about £23 a year—less than a ¼*d.* per head of population and 2*d.* per acre of land. As a matter of fact, the admission-rate for malaria seems to have increased rather than diminished, for it was 246·5 per cent. in 1906 against only 71·8 per cent. in 1905. The surrounding villages appear to have been left untreated and the cantonment itself is full of borrow-pits.

Although campaigns seem to have been at least commenced in many stations in India, I can gather only meagre and insufficient information about them in the official reports. At Jubbulpore and Dinapore considerable drainage and antimosquito works, combined with quinine prophylaxis, appear to have produced marked effects ([38], p. 16). Active, and so far as I can ascertain ([18], p. 230) enthusiastic, measures have been adopted in Peshawur, Rawal Pindi, Sialkot, Ferozepore, Karachi, Mhow, Kamptee, Deesa, and Saugor; and in Burma ([41], p. 6), in Akyab, Myitkyina, Monywa, Paletwa, Mogok, Kyaukpyu, and Maymyo. At Mogok Captain J. Good, I.M.S., reports a diminution of malarial fevers (diagnosed by the microscope) from 25·4 per cent. of admissions in 1905 to 16·4 in 1906. As a rule, however, neither results nor expenses are given in the official reports.

The total amount of malarial fever in India, with its population of about 300,000,000, is immense. There must be several millions of deaths directly or indirectly due to it every year. Among the troops and prisoners in jails the annual number of admissions into hospital for malaria equal between a quarter and a half of the total strength. It is therefore very necessary that all the antimalarial work throughout the country should be dealt with in a business-like manner and that the results obtained should be collected and published for guidance and study.

VII.—OTHER CAMPAIGNS.

Khartoum.—This very interesting work was commenced in 1903 by Dr. Andrew Balfour, director of the Wellcome Research Laboratories of the Gordon Memorial College, and will be found accurately described in the two fine reports of the laboratories,[41] to which I must refer for details. After a preliminary survey of the local mosquitoes, a small brigade was started on the lines laid down by me and quickly attacked the breeding places. These in Khartoum were wells, pits, garden tanks and pools, sullage pits, river pools, and collections of water in steamers and barges. After heavy rain large pools which may last for some time form

[36] Giles: Cold Weather Mosquito Notes from India, Journal of Tropical Medicine, April 1st, 1904.
[37] Ross and Sewell: Brit. Med. Jour., Sept. 17th, 1904.
[38] Annual Report of the Sanitary Commissioner with the Government of India, 1905. Calcutta.
[39] Indian Medical Gazette, January, 1905, p. 30.
[40] James and Liston: A Monograph of the Anopheles Mosquitoes of India. Thacker, Spink and Co., Calcutta, 1904.
[41] Balfour: First and Second Reports of the Wellcome Research Laboratories, 1904 and 1906. Department of Education, Khartoum.

on the flat ground and used to breed many mosquitoes. All these waters were attacked by various methods, with the result that the larvæ were found in quickly decreasing numbers. Now, in his second report, Dr. Balfour remarks that, although mosquitoes have not been completely banished, yet "we are rid, and well rid, of the annoying stegomyia, the dangerous pyretophorus is kept in abeyance, and culex, the ubiquitous, has ceased to be a nuisance." He adds: "I have not seen a living, wild, adult anopheline in Khartoum for more than a year and a half, and I am always on the outlook for these insects." The effect on the amount of malaria could not be estimated owing to the absence of statistics and to the fact that malaria was never very prevalent there. If by accident the insects are allowed to recur, malaria reappears; and he tells me that since the date of his second report six primary cases have been caused in this way, though the outbreak was promptly suppressed. Owing to the assistance of Colonel R. H. Penton, R.A.M.C., principal medical officer of the Sudan, the work was extended. Surrounding villages are heavily infected, but excellent rules regarding irrigation are being introduced. Dr. Balfour and his colleagues are to be warmly congratulated on their work.

Some years ago Colonel Penton asked me to go to the Sudan to advise regarding the prevention of malaria in the Sudan. I was unfortunately unable to accept the invitation, but he himself has carried out excellent work with considerable success in Kassala and El-Obeid, besides Khartoum.[42] In Port Said (56,000 inhabitants) an active campaign has been conducted by my brother Mr. E. H. Ross against the mosquitoes there.[43] The result is, he says in a letter dated last March, that there "has been almost complete absence of the pest in a year's work. No case of acute malaria has been admitted to hospital since August last. There has been a reduction in the death-rate. ..... At Ismailia the results are well known. There is now a complete absence of mosquitoes and of malaria. But in some of the villages round there is much malaria and many anophelines, owing to the irrigation." In Cairo, in the district of Kasr-el-du-Barra, and Helowan, campaigns have been organised with success by my brother Mr. H. C. Ross. This Egyptian work has been carried out with the sanction and approval of Sir Horace H. Pinching, the distinguished head of the Sanitary Department of Egypt.

Candia, Crete.—The accounts of this excellent campaign, conducted in connexion with the British troops in Crete, will be found in successive numbers of the *Journal of the Royal Army Medical Corps*. The town of Candia, containing 21,000 inhabitants, is situated on the seashore of a semicircular plain bounded by hills. The rainfall is heavy and the ground is traversed by many streams which become torrents in winter and nearly dry in summer. Two of them have marshy margins near the sea. The houses of the town are of the Oriental type and contain many wells. The troops are accommodated in quarters to the west of the town and close to it and suffered considerably from malaria. Apparently as early as 1902[44] Lieutenant-Colonel J. V. Salvage, R.A.M.C., commenced to examine into the distribution of anophelines and to destroy the larvæ by drainage, or by closing or oiling the wells, or putting fish into them, and expressed himself hopefully regarding the result. In March, 1903, Major C. J. MacDonald arrived in Crete and continued the work.[45] He gives many very interesting details. Works of a permanent nature were attempted and quinine prophylaxis and mosquito nets insisted upon. The first results were as below:—

Years	1901	1902	1903
Strength	564	460	410
Admissions	1540	1084	227
Rate per cent.	273	236	55

The admissions include simple continued fever, together with malaria, in order to avoid error due to diagnosis. Major MacDonald attributes the fall to the measures taken. In 1905, Captain R. A. Cunningham, R.A.M.C., adds a third article,[46] in which he states that the fall in the malaria-rate had continued, and was only 30 per cent. in 1904 compared with the 55 per cent. of 1903. The mosquitoes were so few that it was almost unnecessary to use a net at night. In 1905 ([18], p. 103) there were 246 admissions, or a rate of 38·7 per cent. Many men become infected on guards and outposts.

St. Lucia.—A good account of this work has been given by Colonel F. P. Nichols, R.A.M.C.[47] British troops have long been stationed at Castries, St. Lucia. During 1902 and 1903 drainage works were carried out by Colonel Hodder of the Royal Engineers, but shortly afterwards the garrison was removed. Colonel Nichols has attempted to ascertain the effect of the operations on the health of the troops before they departed. He gives many interesting cases, and remarks: "The apparent effects were very marked, as noted by both officers and men, by Major Bent, R.A.M.C. (to whom I am indebted for many notes on the point), and by the other Royal Army Medical Corps officers, and as testified by the immediate drop in the admission-rate for malarial fevers, which began at once and has continued ever since." Colonel Hodder said: "At the present time (1904), in buildings which were formerly infested with mosquitoes of all kinds, scarcely a sign of one exists; but it has taken two years of continuous work to effect this result." Colonel Nichols gives and discusses many figures from among which I select the following:—

Years.	Admission-rate per cent.	Years.	Admission-rate per cent.
1895	339	1901	575
1896	417	1902	851
1897	314	1903	127
1898	256	1904	77
1899	141	1905	45
1900	100		

The admissions include simple continued fever.

VIII.—Campaigns at Havana and Panama.

Havana.—I have already referred to the great discovery of the mode of propagation of yellow fever and the subsequent campaign against that disease started in Havana in February, 1901. The result as regards yellow fever was decisive for several years, and although it reappeared in 1905 and 1906 it was again banished when the United States resumed control of the island last year. As regards malaria the general war against mosquitoes in Havana produced marked effects. Almost immediately after the commencement of the operations in February, 1901, this disease also began to decline, and the diminution has been steadily maintained. The details will be found in the full monthly statistics of the Board of Health,[48] but Dr. Charles Finlay, the distinguished originator of the mosquito theory of yellow fever, and head of the Health Department of Cuba, has kindly furnished me with the following figures of the deaths from malaria in Havana for a number of years:—

Years	Deaths (malaria).	Years.	Deaths (malaria).	Years.	Deaths (malaria).
1880	335	1889	228	1898	1907
1881	228	1890	170	1899	909
1882	191	1891	203	1900	344
1883	183	1892	202	1901	151
1884	196	1893	240	1902	77
1885	101	1894	201	1903	51
1886	135	1895	206	1904	44
1887	269	1896	450	1905	32
1888	208	1897	811	1906	26

The population of the city is about 250,000. Dr. Finlay tells me that it has been possible to carry out antimosquito work outside the city only occasionally when yellow fever or malaria threatened certain localities. On all such occasions a regular antimosquito campaign was started and ordered to be continued thereafter. This great work, due to Gorgas, Finlay, and the United States Government, constitutes an epoch in tropical sanitation.

Panama.—Perhaps even more remarkable is the work of the Americans under Colonel Gorgas on the canal zone of the Isthmus of Panama. As is well known, the attempt of the French to cut the canal through the isthmus was foiled principally by yellow fever and malaria, and I was told that their effort had cost quite 50,000 lives. The Americans took

[42] Penton: The Malarial Campaign in the Sudan, Journal of the Royal Army Medical Corps, vol. iv., p. 628, 1905.
[43] E. H. Ross: Measures against Mosquitoes in Port Said, Journal of Tropical Medicine, March 15th, 1907.
[44] Salvage: Preventive Measures against Malaria in Candia, Crete, Journal of the Royal Army Medical Corps, vol. ii., p. 566, 1904.
[45] MacDonald: Crete as a Station, &c., ibid., vol. iv., p. 31, 1905.
[46] Cunningham: Malaria Fever in Candia, ibid., vol. v., p. 274, 1905.
[47] Nichols: The Effects of Large Drainage Works on the Prevalence of Malaria, Journal of the Royal Army Medical Corps, vol. viii., p. 243, 1907.
[48] Informe Mensual Sanitario y Demografico, Habana.

possession of the works early in 1904, at a time when the mode of propagation and of prevention of both diseases was well known, and they wisely determined to commence their labours with sanitation. Colonel Gorgas, assisted by a capable and enthusiastic staff, was put in charge and attacked the work with knowledge and energy. I visited the place at his invitation in the autumn of 1904 and was a witness of the skill shown in his dispositions. The country is one of the worst to deal with which I have ever seen. Hilly, with a great rainfall, a loose crumbling soil, a luxuriant vegetation, and innumerable small marshes and pools, it was evidently the very stronghold of malaria. Step by step, with the aid of numerous experts and hundreds of workmen, the Americans cleared the forests, drained the pools, and banished the stegomyia. The details and the results will be found in the monthly and annual reports of the work [49] and in a recent address by Colonel Gorgas.[50] Put briefly, the results are that in 1906 amongst 5000 white American employees the total death-rate was only 7 per mille, and of this only 3·8 per mille were due to disease. Last April the daily sick-rate of the total force of about 40,000 people was only 17 per mille. Colonel Gorgas says: "Among 6000 Americans in the employ of the Commission, including some 1200 American women and children, the families of these employees, we have but little sickness of any kind, and their general appearance is fully as vigorous and robust as that of the same number of people in the United States." These published statements are fully borne out by private communications from individuals living there. Colonel Gorgas adds: "I think the sanitarian can now show that any population coming into the tropics can protect itself against these two diseases (yellow fever and malaria) by measures that are both simple and inexpensive ..... ; and that again the centres of wealth, civilisation, and population will be in the tropics as they were in the dawn of man's history. ....."

In this great work of Colonel Gorgas and his colleagues I recognise the attainment of that ideal which was set before me when, ten years ago, I found the zygotes of the parasites of malaria in mosquitoes. I regret only that the honour of attaining it has not fallen to my countrymen, as might well have been the case. But we must none the less congratulate the Americans on the splendid achievement with which they have signalised their entry into the lists of the colonising nations of the world.

IX.—REMARKS AND CONCLUSIONS.

Exigencies of space have compelled me to be very brief in my descriptions of the above campaigns. In addition to them good work has been commenced in the Andaman Islands, Ceylon, South Africa, Southern Rhodesia, British Central Africa, Sapele (West Africa), and Mauritius (which last-named place I hope to visit shortly on behalf of the British Government). Good work has also been done in connexion with many mines and railways in West Africa; but at present details regarding most of these campaigns are not available, or are either too meagre or buried in inaccessible local reports. The excellent antimosquito work of Doty and of Weeks and others in the United States, and of the French in Corsica and Algeria, is somewhat outside my province. I should have liked to describe the operations in Greece (which I was able to visit last year), but this will be done much better by my distinguished friend Professor Dr. Savas. For many papers on the prevention of malaria I must refer to the British medical press, especially THE LANCET, the *British Medical Journal*, the *Indian Medical Gazette*, and the *Journal of Tropical Medicine*.

From all the experiences collected and the discussions carried on during these ten years the following general conclusions are now, I think, beginning to emerge:—

1. For tropical sanitation against both malaria and yellow fever (and probably filariasis) general mosquito reduction is by far the most practical, as it is the most fundamental, method, at least in thickly populated areas. In support of this proposition, originally advanced by Finlay for yellow fever and now by myself for malaria, it suffices to quote the greatest living authority on the prevention of both these diseases—Colonel Gorgas—who for more than six years continuously has been waging successful war against them, not on a small but on a large scale, and not in easy but in the most difficult possible conditions. Regarding yellow fever, he says [50]: "When we left Cuba after the disappearance of yellow fever, we were inclined to think that the results had been obtained principally by the destruction of the infected stegomyia, but further experience at Panama has convinced me that the important element is the destruction of stegomyia generally. I merely mention this as showing how practical work and experience entirely change well-grounded theories." Regarding malaria, after enumerating the various methods of prevention, he says [50]: "By far the most important of these measures is that of destroying the breeding places and this is successfully done by surface and subsoil drainage." So many people write on this subject without any real practical experience of it that we shall do well in future if we listen more attentively to such words as these of Colonel Gorgas.

2. Prophylaxis by quinine, by screens, and by segregation may be attempted, if possible, in addition to the fundamental measure, but, as regards tropical towns, must be looked upon only as adjuvants to it. As a rule, in the tropics general cinchonisation is feasible only for officials, troops, and bodies of workmen; and screening and segregation can seldom be used except for public buildings and the houses of Europeans. All should be advocated, but there is a distinct danger of wasting on the subsidiary measures efforts and funds which might be more usefully spent on the fundamental one, a thing which I have frequently observed to happen. For example, cinchonisation is being much advocated, and quite rightly so, for the troops in India; but at the same time irrigated fields are often permitted to remain in the close vicinity of barracks. Hence, while the number of relapses among the men may be reduced, yet probably just as many as before become infected from the surrounding untreated population and a false impression of improvement is given. It is constantly forgotten that for the individual quinine is, properly speaking, not a prophylactic at all—it does not exclude infection, but merely extirpates it (in some cases) after it has effected an entry. It is poor policy to substitute a possible extirpation for a certain exclusion. On the other hand, the subsidiary measures become essential where it is not worth while to attempt mosquito reduction, as in the case of camps and of many isolated houses, farms, plantations, &c.

3. There is no doubt that the mere knowledge of the fact that mosquitoes cause infection is producing a great improvement of the health of educated people in the tropics. This occurs in two ways: first, such people are more careful in the use of nets; and, secondly, medical men, without undertaking formal campaigns, do more than formerly to suppress breeding pools close to houses, barracks, &c. There is thus a kind of unconscious prophylaxis beginning to be adopted everywhere. The following figures, which I have collected from the Indian Sanitary Reports [34] give some evidence of this:—

Admission Rates per 1000 for Malaria in India.

Years	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905
Jail prisoners	292	383	348	350	364	382	375	366	346	336
Native troops	292	363	355	277	335	373	286	256	201	180
White troops	253	420	427	245	321	300	254	247	177	114

These statistics refer to the prisoners and troops of the whole of India, and are, therefore, very reliable. It will be observed that the admissions among the prisoners have not decreased, owing to the fact that these people, drawn from the lowest classes of the population, are constantly being changed in the jails, so that sanitary improvements as regards malaria in these buildings can produce little effect on their fluctuating population. On the other hand, there appears to be a considerable decrease among the troops, all of whom have medical men in charge of them, while the white troops are provided also with mosquito nets or punkas. There has been a slight increase in the amount of simple continued fever diagnosed, but not nearly enough to account for the fall in the malaria rate.

4. But unconscious prophylaxis of this kind will not do everything, and State intervention is necessary if the fullest results are to be obtained. Here two great mistakes have been made.

The first mistake is to suppose that we can educate the general public by means of notices and pamphlets to protect themselves against disease—a mistake constantly made by inexperienced sanitarians. We may reach a few educated people in this way, but, as every practical health officer knows, the masses will not trouble to take the advice. It is

[49] Reports of the Department of Health of the Isthmian Canal Commission, Monthly and Annual. Government Printing Office, Washington.

[50] Gorgas: Sanitation in the Canal Zone, Journal of the American Medical Association, July 6th, 1907.

ridiculous to suppose, for example, that a large native population will use nets, or take quinine, or destroy mosquitoes, simply because the "doctors" advise them to do so. Even among civilised nations hundreds of thousands reject so simple a precaution as vaccination. In other words, from a sanitary point of view the general public is a child which must have everything done for it.

The second mistake is to suppose that small local authorities, if left to themselves, will interest themselves greatly in sanitation. A review of the campaigns against malaria which I have discussed will show that all of them are due to the energy and intelligence of single persons. If a locality possesses a governor or a medical man of capacity the campaign is started and is continued as long as he remains there. If not, nothing whatever is done. The truth is simply that local officials are, as a rule, unwilling to take the necessary trouble. Secure of their pay and their pensions they easily avoid the obligation by pretending that the work is too difficult or too expensive. Now the only way to overcome this inertia is to use official compulsion from the higher authorities. But, strange as it may seem, I have not known a single case in which such action has been taken. The local authorities are allowed to go their own way quite uncontrolled and are not even compelled to collect statistics. At the same time nothing is done to encourage sanitary officials to bestir themselves in this line. I have not heard of a single instance in which anyone who has really done good work against malaria has received official thanks or reward for his pains; while, on the other hand, honours have been given to men who have actually retarded such work. There is often much pretence of action—conferences are held and speeches are made, but the years elapse and—the malaria remains as it was.

Besides local inertia there is another reason why local efforts against the disease are often so limited and that is the fact that medical men in the smaller colonies do not always possess the knowledge of how to use the colonial resources to the best effect. Ill-advised attempts are made and result only in failure, waste of money, and discouragement of other efforts.

X.—RECOMMENDATION.

After consideration, therefore, I can only suggest—what I have fruitlessly suggested many times for many years—that the best way to encourage more vigorous action in the future is to centralise the antimalarial administration. Each principal government which presides over malarious countries or colonies should appoint a special commissioner to travel from place to place in order (1) to advise local authorities as to the best measures for dealing with malaria in each locality; (2) to report to the head government; and (3) to organise the collection of statistics. Such an appointment is perfectly practicable and is in fact nothing but the specialisation of the Indian system of sanitary commissioners or of the American Marine Medical Service system. It would gather the reins of antimalarial organisation into one hand; would help the willing authorities and stimulate the unwilling; and would save funds now often wasted on abortive efforts. At present, I think, the inhabitants of many malarious places have reasons to make serious complaint of the slackness with which modern discoveries have been followed up, and we can only hope that the next decade will show a more rapid advance in this respect.

ADDENDA.

Since the above was written the colonial reports[18] for some West African colonies for 1906 have been published and give more detail on sanitary matters than previous reports have afforded. In Sierra Leone the sum of £2223 was expended on repairs to streets and on laying down concrete surface drains, and a scheme "for devising a proper system of drainage has been approved by the Secretary of State and will be carried out during the current year." The mortality and morbidity returns as briefly given in the report show no marked change during recent years. For Bathurst, British Gambia, it is stated that, "Bordered as it is on two sides by large swamps, there must, however, be a great deal of fever endemic in the place, and this it is impossible to prevent, though considerable improvement has been effected by the anti-mosquito sanitation measures which are vigorously prosecuted." In the report for the Gold Coast it is stated that "improvements were carried out at considerable expense in the towns of Cape Coast, Sekondi, and Kumasi." The deputy principal medical officer states: "I have no hesitation in saying that the health has improved," but I can find little trustworthy evidence of this in such figures as are given in the colonial report. Work done in Burma has already been mentioned but further details will be found in Colonel King's report on the sanitary administration of Burma for the year 1906, showing that active interest is now being taken in the matter.

Regarding the Federated Malay States, there was a great increase of malaria during 1906 in the district surrounding Klang and Port Swettenham, owing to a large influx of coolies, but in these towns themselves it has remained absent owing to the measures taken (supplement to the *Selangor Government Gazette*, 1907). Dr. M. Watson is urging energetic measures for dealing with the malaria of coolies in plantations. Great interest is shown in the country regarding the whole subject, and the medical department is happy in having the strong support of the British Resident, Mr. Conway Belfield.

At the meeting of the British Medical Association in July Major A. H. Nott, I.M.S., described an antimosquito campaign at Murshedabad in India, but I regret that I have not yet been able to see a copy of his work.

Owing to the efforts of Colonel Seely, M.P., and Mr. Hahnemann Stuart, the British Colonial Office promised last year to issue a report on the prevention of malaria in all the colonies in its jurisdiction, but the paper has not yet been published.

As many shipowners have taken interest in tropical medicine I sent a circular some months ago to most of the leading firms with sailings to the tropics asking them for information regarding the steps which any of them may have taken to prevent malaria on board their ships. Although the request was repeated only three firms have replied. The Booth Steamship Company (Liverpool, New York, and Brazil), which has done much for research work, informs me that quinine is given regularly to its crews while on the Amazon, and that the men are provided with mosquito nets and the ships' hospitals with wire-gauze fittings. They have few cases of fever. The Harrison Line (Liverpool, America, South Africa, and India) has never had many cases of fever on board its ships; but nevertheless quinine is given regularly "at malarious ports," and the men are supplied with muslin mosquito-bars. Messrs. John Holt and Co., who charter steamers to various tropical ports, strictly order the use of quinine and provide mosquito nets and sun-helmets for the men. Mr. Holt says that "the general effect of our instructions has been to lessen fever arising from malaria," but is disappointed that it has not been entirely banished. He is not a shipowner, but wishes that some owner would build (experimentally) a steamer fitted for excluding mosquitoes, and cannot conceive that such a thing is impossible to human ingenuity. He thinks that legislation should be passed to compel vessels visiting the tropics to adopt the necessary measures against malaria.

Liverpool.

A NEW OPERATION FOR PENILE HYPOSPADIAS.

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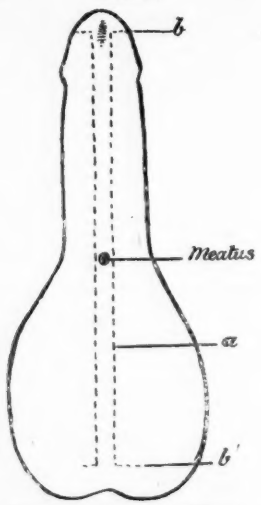
THE following operation for the relief of penile hypospadias has not, as far as I am aware, been previously described. It has proved so successful, however, in the few cases in which I have tried it that I now venture to give an account of it, as I believe that in suitable cases it will be found to afford more satisfactory results than can be obtained by the various operative procedures now in vogue.

Description of the operation.—The penis is drawn up over the abdomen in the middle line and the scrotum is drawn down in the opposite direction between the thighs, so that the groove, usually present in such cases, on the under surface of the penis, the false meatus urinarius, and the scrotal raphé all occupy the median line (Fig. 1). Two similar incisions are now made on each side of the median line one-eighth of an inch from it and parallel to it. Each begins on the glans penis and is continued down the penis until opposite the misplaced urethra at its root. Each incision is now prolonged on to the front of the scrotum on each side of the

scrotal raphé and parallel to it until the incisions on the scrotum measured from the level of the misplaced meatus are equal in length to those on the penis measured from the same point to the point of their commencement on the glans penis. When these incisions are completed a median strip of skin a quarter of an inch in width is mapped out, reaching along the upturned ventral surface of the penis and the front of the scrotum, with the misplaced meatus at its centre. From

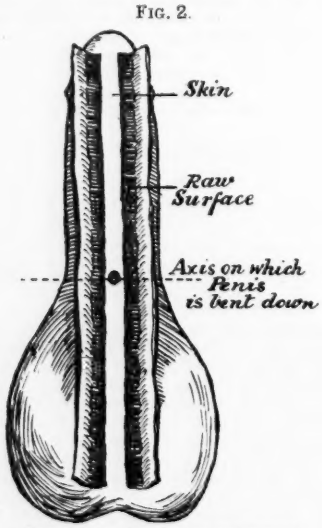
FIG. 1.



Showing incisions (dotted lines).

the extremities of the two incisions bounding this strip of skin others are now made outwards at right angles, each a quarter of an inch in length (Fig. 1 *b b'*). In this way two longitudinal flaps are marked out on either side of the median strip of skin throughout its whole length. These flaps are dissected up off the sides of the penis and front of the scrotum respectively, and rolled outwards away from the middle line throughout their whole length (Fig. 2).

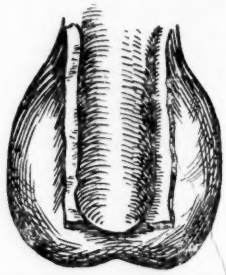
FIG. 2.



Showing flaps dissected up and everted.

Two long strips, each presenting a raw surface half an inch wide, are thus produced on either side of the median strip of skin previously referred to, which is left undisturbed (Fig. 2). The flaps are held in the everted position with forceps throughout their whole length, and while in this position the penis is flexed down on to the scrotum in the middle line about a transverse axis passing through the misplaced urinary meatus (Fig 3). The median strip of skin on the ventral aspect of the penis and the raw areas flanking it thus come to lie on the corresponding median strip and raw surfaces on the front of the scrotum. The penile strip of skin will form a roof for the new urethra and the scrotal strip will form its floor. The raw surfaces on each

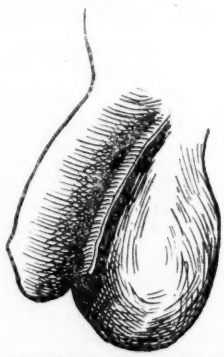
FIG. 3.



Penis flexed on to scrotum with flaps everted.

side, when properly sutured, will cohere and grow together, fixing the penis to the scrotum and closing in the lateral aspects of the new urethral tube so as to render it water-tight. The parts now present the following appearance. The penis lies on the front of the scrotum in the middle line like a complete web penis and on either side where they come together the opposed penile and scrotal flaps project so as to form a flange about a quarter of an inch in width, which extends from the root to the tip of the penis (Figs. 3 and 4).

FIG. 4.

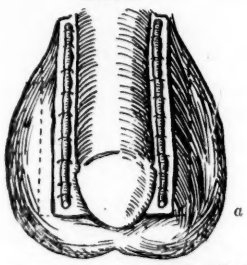


Side view of penis, flaps, and scrotum.

The penile and scrotal flaps forming each lateral flange are now sutured together in a special way. Each flange is transfixed by the needle, close to its free edge, and the needle is then reversed and passed through the flaps forming the flange in the opposite direction quite close to the attached borders of the flaps composing it. In this way a series of sutures are inserted at intervals of a quarter of an inch from the root of the penis to its tip, each running transversely to the axis of the penis, across the skin surfaces of the penile and scrotal flaps (Figs. 5 and 6). In passing each suture through the attached base of the flap special care is taken that the needle almost, but not quite, takes up the edges of the strips of attached skin, which will form the roof and floor of the new urethra, for it is important to approximate the epithelial margins without the suture projecting into the new urethral lumen (Fig. 6). All the sutures are passed before any are tied and before tying them two special manœuvres are carried out: (1) small rubber tubes are passed under the sutures on the front and back of each flange to avoid puckering of the skin and to keep up pressure over a broad area between the opposed raw surfaces of the flaps (Figs. 5 and 6); and (2) a small rubber catheter, with the eye cut off is passed along the track which will form the new urethra and pushed a short way down the previously formed urethra so as to drain off the urine without soiling the newly constructed portion. A suture at

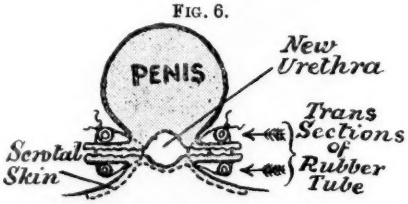
the tip of the penis fixes the catheter in place. The parts are dressed with lead lotion every four hours. On the fourth day the piece of catheter is removed and urine is allowed to pass down the new urethral tube. The sutures are all removed at the end of 14 days and the parts are ready for

FIG. 5.



Shows penis fixed down on to scrotum and method of passing sutures through flaps over rubber tubes. The dotted line shows the outline of scrotal flap to cover in ventral surface of penis when dissected off the scrotum. *a*, Rubber tubes under sutures.

FIG. 6.



Scheme of suturing flaps round tubes to close urethra.

the second operation in from three to four weeks if the patient's condition is still favourable. Otherwise the second operation can be postponed indefinitely.

Operation, second stage.—The penis and new urethra are dissected up from the scrotum, lateral flaps derived from the scrotum being left attached on either side of the penis to close in the raw surface beneath it (Fig. 5, dotted line, and Fig. 7). Other flaps are formed on the scrotum; and by gliding them towards the middle line the raw surface on the front of the scrotum is easily closed (Figs. 7 and 8). If the lateral flanges used to unite the

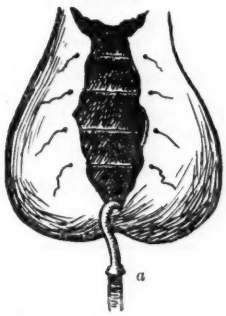
FIG. 7.

Penis raised from scrotum and flaps of skin sutured over.

penis and scrotum in the first stage are seen to project too freely they can be trimmed off either now or later to improve the cosmetic result.

I now propose to refer briefly to the cases in which I have performed this operation and afterwards to consider the

FIG. 8.



Method of closing raw surface on scrotum after dissecting up penis and new urethra by dissecting up lateral flaps. *a*, Hook converting broad into narrow wound.

advantages and disadvantages which the operation appears to possess.

CASE 1.—The patient was a boy, aged four years. The misplaced urethral orifice was placed at the junction of the root of the penis and the scrotal raphé, the scrotum being uncleft. A well-marked median groove ran along the under surface of the penis, in the site where the urethra should have been. There was slight ventroflexion of the penis but no fibrous band tying it down. The false meatus was of good size.

CASE 2.—The patient, a boy, aged two years, presented much the same deformity as did the patient in Case 1, but the scrotum was slightly cleft above and the meatus was so narrow that a preliminary plastic operation had to be performed to enlarge it so as to admit of the insertion of a catheter at the time of the real operation and to obviate the possibility of a stricture at this spot when the new urethra had been completed.

CASE 3.—The patient, a boy, aged three years, exhibited a very similar condition to that described in Case 1. His physical state was not good and consequently the first stage of the operation was done *à deux temps*, the half of the penis near the root being dealt with at one operation and that nearer the tip being sutured down to the scrotum at another, and the whole tube being subsequently dissected up in the usual way at a later operation.

The first two cases were treated five years ago and the third two years ago. The first two were followed for three years and remained as satisfactory in every way as could be desired. All the cases healed without delay and there was never any leakage or tendency to stricture.

The advantages which may be claimed for this method of operating are as follows: 1. That it is performed in two stages, each of which can be rapidly accomplished. This lessens shock and enables the operation being done at an early age, the ultimate plastic result being all the better in consequence. 2. That the skin utilised to form the roof and floor of the new urethra is not dissected up or even touched, consequently it retains its vitality and does not tend to slough as when flaps are used for this purpose. 3. That no sutures project into the lumen of the new urethra. 4. That the skin of the roof and floor of the new urethra is respectively in continuity with the roof and floor of the previously existing one. There is in consequence no tendency to the formation of a fistula or subsequent stricture at the site of the false meatus as so frequently happens when other methods are employed. 5. No buried sutures are necessary and the apposition of the broad raw surfaces afforded by the flaps on either side, supported by the rubber tubes, prevents any tendency to leakage.

The disadvantages to be considered are two in number: (1) that the operation is only applicable if the scrotum is uncleft; and (2) that hair may possibly grow later on in life from the skin of the scrotal raphé which is used to form the new urethral floor. The former disadvantage is minimised by the fact that by far the larger number of cases of hypospadias are of the penile variety, and that should the scrotum be cleft as well the greatest trouble is not so much due to the deformity as to incontinence of urine which is incurable.

With regard to the possible growth of hair in the urethra leading to trouble there are several points for consideration: 1. If the strip of skin on the ventral aspect of the penis is cut wide so as to form the roof and sides of the new urethra, while that on the scrotum is narrower, so as to include little more than the raphé, it is evident that if hairs do develop they will be few, as the raphé grows few or none

in ordinary circumstances. 2. If the operation is done early may not the character of the epithelium be altered by environment and hair fail to develop? 3. Would the growth of hairs lead to trouble: as in cases where the skin of the pubes is utilised to form the front of the bladder in extroversion? In the first place, operations for extroversion are done at a later age when the hair has started to grow; secondly, the growth of hair is more exuberant here than on the scrotum; and thirdly, the great trouble caused by the hair in extroversion is due to alkaline decomposition and phosphatic deposit, due to the ill-formed bladder leaking and becoming infected. In a properly repaired urethra no such leakage would occur and alkaline decomposition would, I venture to believe, be unlikely to arise.

Devonshire-street, W.

ON THE DISPLACEMENTS PRODUCED BY PLEURAL EFFUSION.

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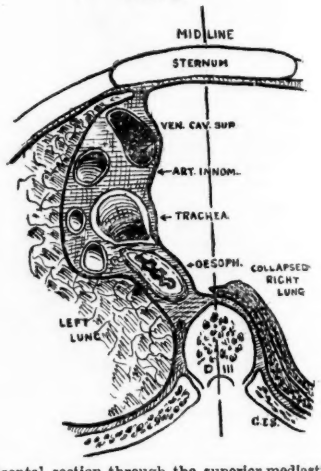
IN this communication I propose to describe the alterations in the topographical relations of the thoracic and abdominal viscera that may be produced by the effusion of fluid into the pleural sac. This is merely one part of a comprehensive study of the displacements of viscera that occur under physiological and pathological conditions which has engaged my attention for some time past. The discussion of the significance of "Grocco's triangle" which has appeared in recent numbers of THE LANCET has induced me to send these notes on the effects of pleural effusion as a contribution to the argument. I do not pretend to discuss the main points raised in the ingenious explanation of the physical signs of pleural effusion offered by Dr. F. W. Forbes-Ross in THE LANCET of June 29th last, p. 1773, but the accurate record of the actual state of affairs in extreme cases of pleural distension cannot fail to be of value in such a discussion. As a rule physicians can form a mental picture of the topographical anatomy of the body cavity under pathological conditions only by inference from the physical signs, and anatomists are apt to draw conclusions as to what may happen when disease attacks the body merely from a study of the normal structure. In these notes I propose to describe what *actually* has happened in cases of pleurisy, when the patients have died untreated and the parts have been preserved and fixed in the positions which they occupied in life. Such an investigation has been rendered practically feasible only by the possession of such a fixative as formalin and by the opportunity of examining material which, in most countries, is available for such purposes only on the rarest occasions. In Egypt it is quite common for patients to pursue their ordinary occupations even when subject to the most serious diseases. Such patients are frequently brought into hospital in a moribund state after having been found in a helpless condition by the police and the unclaimed corpses of many of these people often find their way into the dissecting room. These frequent opportunities for studying the effects of disease on the anatomy of the body have been of the utmost value in teaching applied anatomy and many of the facts brought to light in conducting these classes seem to be of sufficient importance to impart to a larger audience. It will conduce to lucidity of exposition if, instead of describing what happens in a series of cases, I give a concise account of the condition found in one case of extreme distension of the right chest. From this it is easy to infer what happens in less advanced cases or in a lesion of the left side.

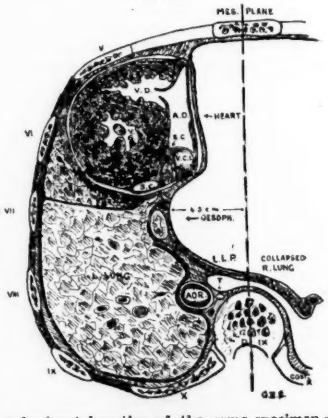
The patient was an adult Egyptian peasant who was brought to the Kasr-el-Ainy Hospital in a moribund condition and died without any treatment. My colleague, Professor A. R. Ferguson, has examined my specimens and tells me that this is a case of simple pleurisy with serous (non-purulent) effusion. The body was preserved within six hours after death (in mid-winter) by intravascular injection of 10 per cent. formalin. This fixed all the organs and tissues *in situ* and firmly coagulated the pleural fluid. The left pleura was almost universally adherent to the lung, which was healthy except for the presence of one very small caseous patch. The right lung was completely collapsed (Figs. 1 and 2) and was lying on the right side of the bodies of the vertebræ (from the third dorsal to the ninth dorsal inclusive). It extended so low only because an adhesion moored the lower end of the organ to the diaphragm. Apart from this collapsed cake of lung there was nothing whatever in the right half of the thoracic cavity, the heart and other thoracic viscera being pushed right over into the left half (Figs. 1 and 2) and the liver being depressed so far that no part of it remained within the costal cage (Fig. 3). Not only was this so, but the right pleural sac extended into the left side of the chest in the region between the second and sixth ribs (seen from the front,

FIG. 1.



A horizontal section through the superior mediastinum at the level of the third dorsal vertebra in a case of distension of the right pleura. The collapsed upper and middle lobes of the right lung are seen.

FIG. 2.



Part of a horizontal section of the same specimen at the ninth dorsal vertebra. A O R, Aorta. A D, Right auricle. S C, Coronary sinus. V D, Right ventricle. T, Thoracic duct. V S, Left ventricle. L L P, Ligamentum latum pulmonis.

as in Fig. 3), and opposite the fifth costal cartilage or the ninth dorsal vertebra (Fig. 2) it reached 4·5 centimetres beyond the mesial plane, forming a pocket behind the pericardium. Behind and on the right side of the liver the right pleural sac pushed the diaphragm beyond the limits of the costal margin (Figs. 3 and 4) in the form of a large sausage-like roll (Fig. 4, post-hepatic pleural sac) bent into a U-shape. In exposing the pleura from behind this sac was seen to extend two centimetres below the last rib.

After this general account of the results of the distension of the right pleural cavity let us briefly consider seriatim its effect on the heart and great vessels, the trachea,

œsophagus, the mediastina, the diaphragm, the liver, and the right kidney. The heart was shifted so as to lie wholly to the left of the mesial plane; in fact, the right edge of the right auricle formed a vertical line from the third to the sixth *left* costal cartilages about one centimetre to the left of the sternum (Fig. 3) instead of being on the right side of the right border of that bone. The apex of the heart was shifted downward to the extent of one intercostal space and outward to about the same amount. The transverse

FIG. 3.

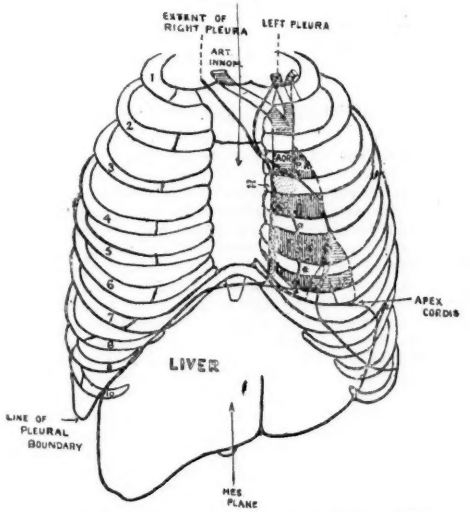


Diagram to show the lines of pleural reflection and the positions of the heart and liver. x * * * shows the left limit of the post-cardiac recess of the right pleural sac.

diameter of the organ was considerably reduced, chiefly by lateral compression of the right auricle (Fig. 2). The opening of the inferior vena cava in the diaphragm had moved across the mesial plane to the left side (Fig. 4). The vessel which it transmited opened into the right auricle opposite the tenth dorsal vertebra. The aortic arch was rotated to such an extent that the three large arterial trunks springing from it came to be placed at their origin in the same

FIG. 4.

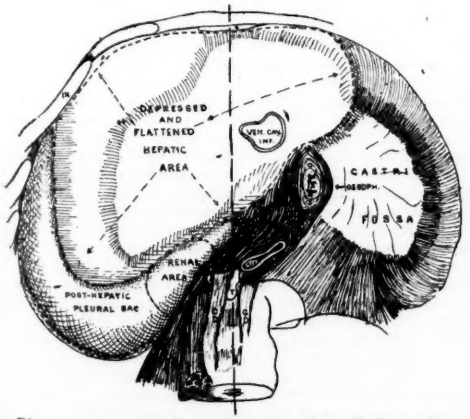


Diagram representing the under surface of the diaphragm in the same case. A O R, aorta. T, thoracic duct. C D, the crura of the diaphragm.

sagittal plane, which was more than five centimetres from the mesial plane (Fig. 1). To reach its destination the innominate artery crossed obliquely behind the whole extent of the manubrium sterni (Fig. 3). The dragging of the large muscular portion of the crura of the diaphragm towards the left (Fig. 4) had compressed the aorta (A O R) to a flattened tube. This must have offered a considerable resistance to the flow of blood. The vena azygos major (to the right of the thoracic duct, T, in Fig. 2) was reduced to a very small size in the lower part of the thorax; and in the aortic opening of the diaphragm and in the neighbourhood of the superior vena cava no trace of this vessel could be found. In the whole of its course the thoracic duct was placed well over on the left of the middle line (Figs. 1 and 2, T) and the descending thoracic aorta had undergone a corresponding displacement. The œsophagus was slightly shifted to the left, even at its entry into the thorax, and became more and more pushed aside (Figs. 1, 2, and 4) as it descended, until in the lower part of the thorax it was as much as five centimetres from the mesial plane. At the same time, it became dragged away from the vertebral column (Fig. 2) and lay close to the pericardium at the anterior end of the long, attenuated posterior mediastinum. Although the right side of the œsophagus was everywhere flatter than the rest and had obviously been submitted to great pressure there was nothing to lead one to suppose that the permeability of the tube had been in any way affected.

The trachea was not only pushed well over to the left but was also distorted (Fig. 1). The mediastinal spaces were all markedly compressed from side to side and were pushed bodily to the left with all their contents (Figs 1 and 2). The pushing forward of the heart resulted in a great antero-posterior elongation of the posterior mediastinum, which became in section (Fig. 2) a narrow band of areolar tissue passing obliquely from the vertebral column to the pericardium. The liver was pushed completely out of the right side of the thoracic cage, and its supero-antero border, which was also the uppermost crest of the organ, exactly coincided with the right costal margin (Fig. 3). The upper surface of the organ was flattened and formed a plane passing obliquely back from the costal margin toward the twelfth rib. The under surface of the corresponding area of the diaphragm is shown in Fig. 4. The liver was shifted downward and to the left; it passed further under the left wall of the chest than is normally the case (Fig. 3), but by far the greater part of its anterior surface was in direct contact with the anterior abdominal wall in the epigastric, hypogastric, umbilical, and right lumbar regions. The organ was pushed so far to the left that the gall-bladder was brought into the middle line. It was also displaced and slightly rotated forward by the extension downward of the pleural sac behind it (Fig. 4). One result of this was an undue prominence of the Spigelian lobe which formed a very large forwardly projecting boss on which the pyloric canal of the stomach was supported when the body was in the recumbent position. The left lobe of the liver came in contact with the spleen so that only a very small part of the stomach was actually in contact with the "gastric area" of the diaphragm (Fig. 4). The post-hepatic pleural sac pressing on the right kidney had pushed it downward and inward and had distorted its form. As the pleural cavity began to expand it left the posterior surface of the kidney and pushed its way down *in front of* the organ. At the same time the upper end of the kidney became truncated and moulded to the form of the angle between the right crus of the diaphragm (Fig. 4, C, D) and the pleural bag (Fig. 4, *renal ar a*). The right suprarenal capsule became wedged into the deep recess of the same angle and had become greatly compressed. The great splanchnic nerve (see Fig. 4, between the right crus (C, D) and the renal area on the pleural sac) was considerably larger than usual, as though it had become swollen by inflammatory infiltration. From the combined effects of stretching and the consequent disuse of the right half of the diaphragm the muscular tissue had undergone degenerative changes. Infiltration with inflammatory products might have had some share in causing this, for the hepatic and post-hepatic areas of the lower surface of the diaphragm were covered with a thick layer of lymph. The pericardium also contained more than the normal quantity of lymph, which is not surprising when we recall what a large area is exposed to the inflamed pleura (Fig. 2). In Fig 3 the lines of pleural reflection have been shown and in addition a line (* * *) has been drawn from the point x on the third costal cartilage outward and downward across the midpoints of the left fourth, fifth, and sixth costal cartilages to indicate (in relation to the anterior thoracic wall) the extent of the retrocardiac diverticulum of the right pleura. If a chart were drawn to show the relation to the back of this left extension of the right pleural sac it would be found to

present a considerable resemblance to "Grocco's triangle." Its broad base would be found just above the twelfth rib and it would taper gradually up to the second dorsal vertebra.

That this is the explanation of "Grocco's triangle" I do not for a moment pretend; but that it may be a factor of some importance in producing left-sided dulness in right-sided effusions must be patent to everyone who studies the accompanying diagrams.

Cairo.

EXCISION OF THE PAROTID GLAND WITH PRESERVATION OF THE FACIAL NERVE; ITS POSSIBILITY.

BY T. CARWARDINE, M.S., M.B. LOND., F.R.C.S. ENG.,
HONORARY SURGEON TO THE BRISTOL ROYAL INFIRMARY.

As far as I am aware there is no recorded attempt to remove the whole of the parotid gland with the preservation of the facial nerve. The following example, in which the operation was performed successfully, may encourage others to preserve the movements of the face in certain cases when removing the parotid gland. The question is rather an important one; for, unlike the conditions which obtain when the main trunk of the facial nerve is injured, there is no possibility of performing any kind of nerve anastomosis after injury to the ramifications of the facial nerve passing through the parotid gland. The distal filaments are too small to join with any other motor supply.

In 1905 a girl, aged 18 years, was under my care for a mixed tumour of the parotid gland which was shelled out so as not materially to damage the nerve. But it commenced to return two months afterwards and the patient came under

Patient after operation, showing the extent of contraction possible in the facial muscles.

my care again in May, 1906, with a tumour of the size of a large walnut. I proposed to her that I would make the attempt to dissect up the facial nerve and its branches first, and then to remove the whole of the parotid gland. By patient dissection with small sharp scalpels the nerve was successfully freed and held up by a loop of catgut, then the vessels were tied above and below, and the whole gland was completely excised. One or two distal filaments were accidentally ruptured, but the greater part of the nerve was preserved. Following the operation there was temporary facial paralysis, but in a couple of months the patient had twitchings at the angle of the mouth and kinæsthetic sensations. In about four months she had some movement of the facial muscles about the eye and mouth. A year afterwards she had good control of the facial muscles of that side, with very occasional slight twitchings. At this time very little inequality in the movements of the two sides of the face was discernible and the extent to which the patient could move the facial muscles of the side of the operation is depicted in the accompanying reproduction of a photograph which was taken during the phase of contracture.

The operation requires the expenditure of considerable time and care but the cosmetic results repay the trouble.

Bristol.

THE INCREASE OF DISEASES OF THE NERVOUS SYSTEM AND OF INSANITY.[1]

BY WILLIAM W. IRELAND, M.D. EDIN.

IT is a subject of common remark that in the present day there is a greater strain upon the nervous system, and this begins at an earlier period of life. The overtaxing at the schools, the increased amount of irksome study men have to go through in order to gain entry into the professions, the greater anxiety and hurry of life, the restlessness induced by the increased facilities of intercommunication, are all additional causes of irritation and depression. There is a craving for a variety of excitements and enjoyments, and a growth of artificial wants and a greater difficulty of earning sufficient wage and keeping up under incessant competition. The diffusion of education amongst all ranks, the struggles of aspiring persons amongst the poorer classes to rise in the world, the discontent and bitter wars of labour, entailing many disputes and frequent strikes and breaches of contract, the spread of the coöperative movement which is rendering the position of the private shopkeeper more difficult to hold, and the formation of big companies which crush out small businesses,—all these and some social antagonisms on which we have no time to dwell go to make this a harder and less agreeable world to many. At the same time the new conditions of our to-day life are not without their compensations. If we move about more we obtain more frequent amusement and change of air; if letters or telegrams too often claim our attention and disturb our repose, they often banish uncertainty and anxiety. Sounder views on dietetics have become known and drunkenness has become less prevalent. The decrease in intemperance in liquor amongst the middle and upper classes during the last half century has been very marked, and there is reason to believe that this decrease is extending to the lower classes. In general, we lead more secure lives than our fathers did, live under better laws, and have less to fear from injustice and oppression. There can be no doubt that during the last half century the condition of the working classes has greatly improved, their wages are doubled, while the purchasing power of money has increased for most articles, and they live under much better sanitary conditions. The result has been a notable diminution of the death-rate both in England and Scotland during the last quarter of the century. Nevertheless, it appears to me that the strain upon the nervous system is getting greater, at least for the middle and upper classes, and that therefore we may expect more nervous derangements and breakdowns. But to make a general opinion like this evident by exact inquiries is, on the face of it, very difficult.

Seven years ago I addressed to a number of medical men of experience and reputation the following queries: 1. Have you found since you began to practise medicine that there has been an increase in the relative frequency of diseases of the nervous system? 2. Have new forms come into prominence? 3. Have you observed any change in the type of old diseases? The answers which I received were far from settling the questions. Some physicians of great experience stated that they had noticed no increase in the relative frequency of nervous diseases; others were of opinion that nervous diseases had increased in frequency during the last 20 years. From all the answers which I have received I should judge that there has been no noticeable increase in nervous diseases in the country districts and in small towns, but there is some evidence that there has been an increase in those complaints in large towns, especially in functional disorders such as neurasthenia. Probably this increase affects some classes and persons of special pursuits more

[1] A paper read at the International Congress of Psychiatry and Neurology, at Amsterdam, on Sept. 5th, 1907.

than others. Dr. Halliday Douglas, long physician to the General Post Office at Edinburgh, saw many cases of nervous derangements and failures of health among the employees, especially those who did their work under high pressure. The female clerks often required leave of absence from illness. I have learned from several sources that monotonous work demanding severe and unremitting attention is most trying for the nerves and assists in causing mental derangement. Thus nervous diseases and insanity are especially common with telegraphists, letter sorters, and persons who have to check mechanical labour. The employments of the present day tend more and more to replacing work needing strength for the watching and direction of the play of machinery. The wear of the nervous system replaces the wear of the muscles.

The increase of the grosser forms of nervous diseases in Great Britain.—In examining the statistics of the mortality from nervous diseases in the Register Office of Edinburgh, through the courtesy of the late Dr. Blair Cunynghame, and his successor, Dr J. C. Dunlop, one thing appeared to me at the outset—that those diseases of the nervous system which are assigned as causes of death are less frequent in Scotland than in England. To quote the Registrar's report: "While in Scotland in 1857 only 170 died of brain and nervous diseases in every 100,000, in England during the same year 273 deaths occurred in a like population from the same causes, and year after year the relative proportions remain somewhat the same in the two countries." The general death-rate for Scotland was in 1855 20·6 per 1000; in 1906 it was 15·993. In Scotland there died from brain and nervous diseases in 1855, 168 persons to every 100,000 of the population; in 1865, 179 persons; in 1875, 217 persons; in 1885, 231 persons; and in 1897, 221 persons, the increase from 1855 thus amounting to 53 persons, about one-third of the first number. The proportion of deaths in every 100,000 persons from diseases of the nervous system was: in 1855, 818; in 1875, 930; in 1885, 1210; and in 1897, 1109. In the report for 1897 we are told that from diseases of the brain and nervous system there were 9257 deaths, giving a mortality-rate for Scotland of 221 in every 100,000 and forming 11·79 per cent. of the total deaths. The rate for Scotland is exceeded by the principal and large town districts; the lowest fall in the insular and rural districts. One can only guess at the efficacy of the causes of nervous diseases in the gross. Drunkenness should be a potent factor, but there has been noted a decrease in the number of deaths from delirium tremens and chronic alcoholism in the last 30 years. And the excise returns of late years have shown a considerable diminution of the consumption of spirituous liquors. The number of deaths from diseases of the urinary organs has doubled from 1855 to 1897. Diseases of the circulation had also doubled during the same period. The mortality from pulmonary tuberculosis has during the last half century sunk by about one-half.

I did not make the same careful examination of the vital statistics of England, as this had been done in the book of Dr. A. Newsholme on that subject published in 1899. He showed that there is a great improvement in public health as indicated by a lower death-rate, commencing in 1872: it fell from 22·6 per 1000 down to 17·4 in 1897. Dr. Newsholme says that "it is doubtful if the increased strain of modern life exists in the community as a whole. Assuming, however, that over-pressure exists in certain stations of life—e.g., among city merchants, medical men, &c.—it cannot be said generally to exist among professional men; clergymen, lawyers, and civil servants are as classes long lived." But clergymen and civil servants generally lead easy lives and it is likely that anxiety and over-pressure may be felt less by the lawyers than by their clients. "Even assuming," goes on Dr. Newsholme, "that over-pressure exists throughout the whole of the professional classes, these do not form the mass of the community. The majority of the population of England and Wales belong to the wage-earning classes and the condition of these classes will therefore necessarily have the greatest influence on the total result." It is easy to prove that the working classes are now in a more prosperous condition than they were half a century ago. Dr. Newsholme, however, showed that there is a high death-rate from diseases of the nervous system amongst barristers and solicitors, railway stokers, and medical practitioners. Diabetes, a disease connected with disorders of the nervous system, has steadily increased, as also have renal diseases, which are high amongst medical men, lawyers, and innkeepers. Diseases of the nervous system show a death-rate per 1,000,000 of 1546 in 1861–65, and of 1600 in 1891–95. Dr. S. A. K. Strahan, in his book upon Suicide and Insanity (published in 1893) called attention to the fact that while the general death-rate for England and Wales has fallen 16·4 per cent. during the past quarter of a century, a rise, in some cases amounting to over 100 per cent., has taken place in the death-rates from hereditary and degenerate diseases. From a table compiled by Dr. Strahan it appeared that the death-rate in England and Wales in the 25 years between 1866 and 1890 had increased for nervous diseases by 10·2 per cent.; from diabetes, 103; from kidney disease, 63·4; and from heart disease, 65·9.

From these statistics it seems to me that it is not going in advance of the evidence to pronounce that the graver forms of diseases of the nervous system have increased in Great Britain, as they are said to have done in France and Germany, during the last 50 years. In Scotland there seems to have been some stoppage in the increase from 1885 to 1905, which, I hope, indicates that the rise of the death-rate from these maladies is not fatally progressive.

Increase of suicide.—Since the publication of Morselli's classical work "Il Sucidio" the attention of sociologists has been directed to the portentous increase of suicides in Europe and North America. This is most marked in large cities and seems to be progressing in every country in Europe save Norway. In the German empire the number of cases of self-destruction has risen from 10,510 in 1895 to 12,730 in 1905. According to statistics recently published by the Swiss Government there have been during the last 35 years 16,640 suicides in Switzerland, 323,600 suicides in Germany, and 274,000 suicides in France. It has been calculated that the yearly number in the whole of Europe amounts to 70,000. In Massachusetts it has increased in 30 years from 69·9 to 90·9 to the million living, and in Connecticut from 60·6 to 103·3 per 1,000,000. Dr. Charles Pilgrim,[2] the President of the New York Commission in Lunacy, tells us that Mr. Heffman, statistician to one of the greatest insurance companies, made a compilation of the statistics of suicide relating to 50 American cities. From year to year the same sad story is told of an increasing propensity to self-destruction. In 1890 the ratio was 12, in 1900 it was 16, while in 1904 it had risen to nearly 20 per 100,000 of the population. In the British Islands the suicides have increased by 200 per cent. in 50 years and by 150 per cent. in 25 years. The following figures indicate the increase in England and Wales during the decade 1885–1904, inclusive:—

	In 1885	1904
Men	1529	2523
Women	478	822
	2007	3345

While some suicides are returned as having been drowned or killed by accident, few accidental deaths are registered as suicides. Altogether the stray errors and omissions in the registers are not sufficient to vitiate the general results. As the causes which tend to induce suicide are the same as those which go to produce insanity, greater sensibility and irritability and a lessened power of reaction, it is not surprising that those who have committed themselves by denying that insanity is increasing should be ready to question any rise in the number of suicides. Their position is incongruous, for as they advance that the increase in the number of registered lunatics is partly owing to the increased number of admissions of the early and milder cases of mental derangement they have to escape the awkward question, Why since many of these cases are of a pronounced suicidal character is there not a decrease instead of an increase in the gross number of suicides? The number of suicides committed under insanity have been variously estimated as between 20 and 30 per cent.; by others much lower. The number of attempts at self-destruction in an asylum is very large.

In Scotland the rise from 1865 to the quinquennial period of 1890–94 has been stated to be from a rate of 40 to a rate of 54, an increase of 35 per cent. From my own inquiries I have found that in 1881 there were 182 suicides in Scotland—131 males and 51 females—out of a population of 3,735,573, giving a proportion of 48·7 to the million. During the quinquennial period within the years 1881–85 the mean annual number of suicides was 202, equal to 52·05 to

[2] American Journal of Insanity, January, 1907.

the million. In the quinquennium 1886–90 the mean number of suicides was 227, giving 56·4 per 1,000,000. In 1905 the number of suicides had risen to 305, being 65 to the million.

Increase of insanity in England.—The steady and progressive increase of the number of the insane throughout Europe has attracted popular attention. Much of this increase is due to the collection of lunatics in special asylums, and to their accumulation, owing to better care giving some of them a longer life; but this fails to explain the whole rise, and physicians like Koch, Kollman, Cettingen, Lunier, and Kraepelin, who have devoted much time and care to examine the statistics, have come to the conclusion that there has been a real increase in the absolute number of the insane. Unhappily the Commissioners in Lunacy for England long ago took a different view, and as the number of lunatics they had to deal with perversely kept on increasing, they have had much care to explain away their own statistics. There were always some men well acquainted with the subject to show that there was a real increase, and the phenomenal rises in the number of official lunatics in 1897 and 1898 opened many eyes. In 1897 there was an increase of 2919 registered lunatics in England and Wales and in the next year an increase of no fewer than 3114. The rise in the number of general paralytics was very marked. In 1859 there were in England and Wales 36,762 certified insane persons—one official lunatic to every 536 persons; in 1869 there was one to every 418; and in 1879 one to every 363. In 1889 there was one registered lunatic to every 337 persons, and in 1893 it was one in 302. In 1906 there was one lunatic to every 283 persons, the proportion being 35·31 per 10,000 of the population, whereas in 1859 it was only 18·64 to the 10,000. The increase since 1859, in proportion to the general population of the country, has been 231 per cent., while the increase of the population has only been 75·4 per cent.

The Commissioners in Lunacy have no means of ascertaining the total number of the insane in England beyond the census returns. They themselves observe in their report for 1904 that they have no detailed information of those pauper lunatics who are in workhouses or in receipt of outdoor relief or are residing with relatives. The admissions to lunatic asylums have risen from 4·71 per 10,000 of the population in 1869 to 6·56 in 1904. Unfortunately we cannot learn how many of these were readmissions.

England.

Census 1871 = 69·019 of the insane.
1881 = 84·503
1891 = 97·383
1901 = 132·624

Turning to the census returns we find a full confirmation in the increase of the number of insane persons in England and Wales. In 1871 there was stated to be one insane person to every 329 of the population; in 1881 there was one insane to every 307; in 1891, one to every 298; and in 1901, one to every 245 sane persons. The Commissioners observe that comparing the ratios in the census of 1891 with that of 1901, the increase in the ratio of the insane fraction of the population was 10·9 per cent. (males 12·2 and females 9·7) and they maintain that the growth of the insane was practically confined to the "pauper" class.

Dr. George H. Savage, in his third Lumleian lecture before the Royal College of Physicians of London,[3] gave as his opinion:

"There is sufficient evidence to show that there is a steady increase in the numbers of the insane in England, Ireland, and Scotland, though in the most recent reports there has been shown to be a reduction in the proportion of insane recognised, but I shall point out reasons for the apparent reduction. Among the more wealthy in England particularly there is a growing disinclination to send their insane relations into asylums. There is certainly no change in relationship to the feeling against asylums and against certification. With the more educated the dread of the transmission of insanity is very great, but if the malady is called by any other name and treated by other than alienist physicians people are satisfied."

Dr. W. H. Bowes[4] agrees with the general impression that there is some increase in insanity, but not enough to create alarm. He points out that there is in a report on the high rate of lunacy in Yorkshire[5] a much larger proportion of insane to sane among the agricultural labourers than among miners and city dwellers. He shows that for 30 years the agricultural counties have shown most pauperism and most insanity. He thinks that marrying in and the poorness of the living and generally depressing vital conditions account for this.

Increase of insanity in Scotland.—The same steady increase in the number of the insane has been going on in Scotland as in England, and there was the same startling rise in 1897 and 1898 which distanced all arithmetical explanations. It is stated in the lunacy report for January, 1906, that since 1858 the number of lunatics under the jurisdiction of the Scottish Lunacy Board has increased by 200 per cent., while the increase of population during the same period has been 56 per cent. In their report for January, 1906, the Commissioners made the pleasing announcement that for the first time there was a retardation in the increase of insanity in proportion to the population during the last three years. In 1906 the number of registered insane (including some imbeciles in institutions) was 17,450; of these 2549 were maintained from private sources, 14,850 by parochial rates, and 51 by the State. This showed an increase of 209 from the preceding year, but allowing for the growth of the population the Commissioners claimed that there was no relative increase. In the proportion of private patients, which had been steadily but slowly rising, the rate of increase was also arrested. During these years the death-rate was considerably higher and there was a falling off in the numbers discharged recovered and unrecovered.

In assuming a decrease in the number of the insane the Commissioners take no note of the numerous patients admitted and treated in the new Glasgow observation wards from their commencement in June, 1904, till May, 1907. These are not certified as lunatics. It is difficult to bring the returns, as they have reached me, into one plane with the Lunacy Blue-book. Let us give an example: from June 15th, 1904, till May 15th, 1906, there were 1077 admissions to the new wards in the Glasgow parish hospital. Of these only 302 were certified and transferred to the asylum, leaving a total of 735 discharged (recovered, improved, or by death) and 40 remaining in hospital. But for the existence of these wards the 735 discharged would all, or almost all, have been certified insane at the very outset and sent to the asylum. The Commissioners' statistics would have been increased accordingly.

Making a wide allowance for deductions and eliminations it may be said that 320 of these patients would have been certified and have been included in the Commissioners' return. We may distribute these 320 patients as follows: June to December, 1904, 80; January to December, 1905, 160; and January to May, 1906, 80. We have also to count the uncertified patients treated in the Govan parish wards which were opened on August 29th, 1905. If these returns be included it is clear that instead of there being a retardation in the number of insane persons in Scotland the augmentation is still going on.

It is disappointing to know that in spite of all the money spent on buildings and furnishings, the care, medical skill and research, and official inspection, there is no increase in the proportion of recoveries in the British asylums and the death-rate is not diminishing. In some Scottish asylums receiving patients from large towns the rate of mortality has been rising, which is attributed to a worse set of cases coming in. The deaths from diseases of the nervous system for every thousand of the average numbers resident have been increasing in the Royal Asylum of Edinburgh for the last 33 years. During the past five years up to 1905 the mortality has been 65·8 and in the year 1906 it reached the unprecedented figure of 85·7 per 1000, or more than double the old proportion. The average number of deaths for the same kind of cases for the whole Scottish asylums is stated to be 33·4. As Dr. T. S. Clouston remarks in his able Annual Report for 1906: in Scotland "deaths from diseases of the nervous system are increasing in the general population in modern times; but that increase is small as compared with this increase of fatal nervous diseases sent to asylums from Edinburgh. No doubt it is one of the problems of modern life to keep the nervous machine going at high pressure and at the same time to prevent its breaking down prematurely."

Increase of insanity in Ireland.—The inspectors of lunatics have had to record an increasing number of the insane with a decreasing population. From the census returns from 1851–1901 the population of Ireland fell from 6,552,385 to 4,458,775—that is, 32 per cent., while the number of the insane rose from 9980 to 25,050, or 151 per cent., and the ratio of insane to population from 15·2 to 56·2 per 10,000, a rise of 267 per cent. The proportion per 100,000 of the

[3] As reported in Brit. Med. Jour., March 30th, 1907.
[4] Journal of Medical Science, April, 1899.
[5] In a report on the High Rate of Lunacy in Yorkshire, see Journal of Mental Science, April, 1899.

population of patients in public asylums rose from 167 in 1880 to 410 in 1903. From 1884 to 1903 the average ratios of first admissions per 10,000 of population were for the four five-year periods 4·7, 5·3, 5·8, and 7·0 respectively, denoting an increase in the second quinquennium over that of the first of 12·7, in the third of 9·4, and in the last of 20·0. The death-rate in the Irish asylums is low.[6] Some of this increase is put down to the reduction of the population by emigration of the mentally fit and partly to the return of emigrants suffering from mental breakdown; perhaps some of these have not been allowed to land in America. It is too easy an assumption to say that the emigrants all belong to the mentally fit, for it has been observed that the proportion of insane among the Irish admitted into the State asylums in America is more than double those of other nationalities. The Irish Lunacy Blue Books give a powerful support to the belief in the absolute increase in insanity.

[After giving figures to show the increase of insanity in France, the Netherlands, and the United States, Dr. Ireland came to the following general conclusions:—]

General conclusions.—It has been argued in various journals that the increase of insanity is only apparent. With insular narrowness the writers confine their attention to the British Isles. They assign the increase of certified insane persons to the accumulation of chronic cases, to a diminished death-rate, to the straitened circumstances of relatives, to the greater readiness to grant admission to all cases of mental failure, aided by the 4*s.* grant from the Exchequer allowed 30 years ago to ease the poor-rates. Then they try to throw suspicions upon the census returns. To most of their objections no determinate value is assigned. They are magnified by rhetoric, and all pointed one way to bring out a case of not proven. All that they know is nothing can be known.

It has been advanced by those who combat the belief that there is a real increase of insanity in Scotland that there is little addition to the number of private patients, the rise being mainly in pauper lunatics, but when one looks at the naked facts he sees that it could scarcely be otherwise. During the last 45 years the smaller asylums which took in those who could pay moderate boards have been squeezed out of existence. The few private asylums remaining are obliged to charge much higher, and the general expenses for the upkeep of the insane have much risen. For many years back it has been the custom that those bearing the burden of a lunatic relation who are anxious to pay what they can go to the inspector of poor who transmits it to the treasurer of the asylum. Thus, a considerable number of persons who would formerly have been private patients are now officially returned as pauper lunatics, although they are not really so. This no doubt makes it easier for people to get rid of the burden of supporting a lunatic dependent than formerly. Much stress is laid upon the greater willingness of the friends of lunatics to send them into asylums owing to the increase of confidence and the skilful and humane way in which asylums are now managed. This, of course, is an argument most pleasing to the superintendents of these institutions. It is capable of indefinite extension. A sudden leap upwards in the admissions only means that the public confidence in asylum stock had risen. I am far from insinuating that this increased confidence or lessened distrust is not what it should be, but I am doubtful of its extent and intensity. It is but a few years ago since, owing to a popular outcry of suspicion, the superintendents in England were shackled with a new Lunacy Act, bristling with galling restrictions and insulting returns. Few people know anything about asylums till some of their relations go mad and then they get them out of the house simply because they have become intolerable in it. What keeps them back from doing so is mostly the expense, which is assuredly not diminishing, for patients whose friends can pay. Moreover, the belief in the hereditary transmission of insanity and idiocy, so often reiterated by the medical press, has now fairly reached the popular mind. Nowadays the stigma of insanity is attached to the whole family, whereas formerly it was but attached to the individual. It is felt like an incapacity and a hindrance to marriages. Hence there is an increased unwillingness to make an admission of an ancestral taint by such an overt act as sending a member of the family into a lunatic asylum, with all the formal scrutiny and certificates required by the laws. That this has a considerable effect in keeping down the admission among the wealthier class I have no doubt. While granting something to all these explanations so ingeniously pleaded, it is the outcome of my inquiries that they fail to account for the whole increase of insanity. I should say that we have to deal with an advance along the whole line, an increase in nervous diseases, in suicides, and in lunacy.

In the well-known work "Psychiatrie," by Dr. Emil Kraepelin, I find a complete agreement with my views. I translate one passage: "On the other hand, regular census with us indicates with certainty a rapid increase of the insane which far overtops the general increase of the population. No doubt this rise is partly accounted for by the greater ease of the numeration and the better knowledge of insanity. Nevertheless, I believe we cannot any longer doubt that we have actually to reckon with a very considerable increase in insanity. This is proved, not only by the alarming increase in the number of the insane, but also by the simultaneous rise in the frequency of suicides and the contrast presented by the town and rural populations."

The learned professor observes that we are living in a time of transition and he hopes that coming generations will be able to enter on the stress and struggle of life with fresh strength and better weapons. We need not believe that this increase of diseases of the nervous system is destined to fatal progression; it may stop or it may retrocede ere long. It would be rash to assume that we are acquainted with all the causes, and the means of prevention are not entirely beyond our control.

Musselburgh.

[6] Journal of Mental Science, January, 1907.

THE TREATMENT OF RHEUMATOID ARTHRITIS.

BY W. J. MIDELTON, M.R.C.S. ENG., L.R.C.P. LOND.

DURING the last six years, in treating rheumatoid arthritis, I have had recourse to counter-irritation of the spine by means of blisters applied in the neighbourhood of the cervical and lumbar enlargements and have found it a most useful therapeutic agent, perhaps *the* most useful, in dealing with this very intractable ailment. I have arrived at this conclusion, not only from the results which have been obtained in the treatment of some 20 patients of my own, but after personally examining a very large number of cases in London, Bath, Buxton, Matlock, and other places and comparing the results obtained there, following on the use of radiant heat, massage, diet, drugs, and mineral waters, &c., with my own.

This plan of treatment was recommended some years ago by Dr. P. W. Latham[1] of Cambridge, who bases his theory on the fact that "clinical experience has taught us that injuries to the spinal cord or even to the nerves of a limb will set up arthritic changes which cannot readily be distinguished from those seen in the earlier stages of rheumatoid arthritis." And secondly that "pathological facts appear to show that the trophic nerves of the bones and joints are found in the mixed nerve trunk, and that they issue along with the motor fibres from the anterior cornua of the spinal cord, where they are, like the muscular trophic fibres, connected with a group of large caudate cells," and that "it seems now generally admitted that both irritative and destroying lesions of the ganglion cells of the anterior horns of the spinal cord and their homologues in the medulla oblongata, pons, and crura, or of the efferent fibres which unite these cells with the periphery, may give rise to active atrophy of muscle."[2] From these pathological and clinical facts Dr. Latham infers that the changes in the joints and the muscular wasting which are characteristic of rheumatoid arthritis are due to irritative and destructive lesions located in the spinal cord and especially in the cervical and lumbar enlargements. With this theory as advanced by Dr. Latham I may not be altogether in accord, regarding the disease as I do as in some measure due to a cerebro spinal toxæmia. As to the beneficial effects, however, of this plan of treatment, when efficiently carried out, the notes of the following cases which have been under my care furnish ample and convincing evidence.

[1] THE LANCET, April 6th, 1901, p. 998. See also "Pathology and Treatment of Rheumatoid Arthritis," by P. W. Latham, M.D. Deighton Bell and Co. 1905.

[2] Ross: Diseases of the Nervous System, second edition, vol. i., p. 241.

CASE 1.—The patient, a married woman, 43 years of age, consulted me in December, 1900. Her family history was unimportant. She had always been active and sober. She had had no family. Many years ago she had typhoid fever. For some years she suffered from metrorrhagia. She underwent subperitoneal hysterectomy in 1897 on account of uterine fibroids. For several years she had had much anxiety on account of a sick husband, and was much weakened by the operation and all that had preceded it. About the middle of 1898 she began to notice tenderness in the feet, neuralgic pains in the limbs, and vague pains in the joints. About six months later she noticed distinct swelling of the wrists and knees, then of the finger-joints of both hands, and then of the ankles. By degrees every joint in the body became stiff and painful, including the intervertebral, temporo-maxillary, and sacro-iliac. 12 months later, notwithstanding treatment at Bath, Buxton, and elsewhere, she wasted to a mere skeleton and was unable to move hand or foot; she said her feet felt "dead" and she was provided with a water bed. She became very depressed and neurasthenic. Her digestion was bad, her skin was harsh and scaly, her fingers were wasted, and the skin over them was thin and glossy. She was unable to write or to do needlework and was pronounced by several medical men to be incurable. On March 18th, 1901, I persuaded her with some difficulty to try the effect of counter-irritation of the spine by means of blisters. Two were consequently applied, each 4 by 1½ inches in size, one on each side of the spine, the upper edges opposite the tenth dorsal vertebra, with a view to influencing the lumbar enlargement of the spinal cord. The blistered surfaces were kept discharging for 14 days by means of savin and resin ointments applied daily. On April 12th the patient said that the pain in the knees and legs was less and passive movements of the legs could be carried out with greater ease and thoroughness than before. On the 16th blisters of the same size were applied on each side of the cervical enlargement of the spinal cord. On the 19th she said that she had more sensation in her feet. The blistered surfaces were treated with savin and resin ointments as before and kept open for 14 days. On May 7th there was found to be all-round improvement. The patient wrote a long letter to a friend. It was the first time she had used a pen for over a year. On the 28th the knees were much less swollen. On June 19th she was much better and was allowed out of doors several hours daily. The digestion was better and she was gaining weight. On the 20th blisters were again applied to the lumbar region and treatment was carried out as before and afterwards to the cervical region. On July 18th the knees were much better; the right leg could now be straightened; it was much bent previously. On the 30th the patient was able to walk a little. On Sept. 16th she went to Buxton. "Chair patient." On Feb. 5th, 1902, she could do part of her own housework. In September she went to Buxton no longer a "chair patient" but saw several patients in chairs who had been able to walk the year before. The patient eventually resumed her household duties, even doing her own washing, and has kept well nourished and active ever since. I attribute this woman's recovery entirely to the action of the blisters.

CASE 2.—The patient, a married woman, had spent her early life in domestic service. When 30 years old her right knee swelled very much and was highly inflamed; this subsided under long-continued leeching and poulticing; it was probably of septic origin and was always stiff afterwards. The hip of the same side became painful but remained useful for many years. Later the opposite knee became gradually stiff and tender but was never much inflamed. By degrees all the joints assumed a rheumatoid condition until at last, at the age of 55 years, she was unable to do any work except a little light work about the house. On examination by me, on June 25th, 1905, the ankles, knees, and wrists were found to be much swollen, with ganglia on the tendons, and pouches of synovial swelling about the wrist. The finger-joints presented the characteristic fusiform swelling and the hands were much distorted. Pain was so great in the right hip that she was unable to lie on that side. She was just able to totter about. Her eyesight was very weak and she was obliged to wear spectacles. She had not been out of her bedroom for three years. She was treated by continuous counter-irritation to the spine as in the former case, and can now (August, 1907) go up and down stairs with ease; she walks out of doors and has gained considerable weight, can do needlework without spectacles, and says her health is splendid. No other treatment was tried in this case after applying the blisters, neither drugs nor special diet, as I determined to test what effect the blisters alone would produce.

CASE 3.—The patient, a married woman, aged 45 years, had had polyarticular rheumatoid arthritis following several attacks of rheumatic fever. She was obliged to give up her work as a charwoman. She was treated by continuous counter-irritation to the spine for one month from June 5th to July 3rd, 1905, and was cured. She resumed work and has kept at it for upwards of two years. She is now in excellent health.

CASE 4.—The patient, a man, aged 74 years, had polyarticular rheumatoid arthritis of several years' duration. He gave up all work at the end of 1905. He was treated by continuous counter-irritation to the spine for 24 days in March, 1906. He had no other treatment whatever. He was greatly benefited and resumed his work as a road-sweeper in May, 1906.

CASE 5.—The patient was a housemaid, aged 40 years. She first noticed rheumatoid symptoms 20 years ago. She was at last obliged to give up work on account of pain and weakness. She had tried practically every known kind of treatment at Bath and elsewhere, including Tallerman treatment, which produced little benefit. Normal perspiration even in summer had been suppressed during the last three years. Her skin was dry. Eventually she consulted me in January, 1907. She was treated by continuous counter-irritation to the spine for one month from February to March. No other treatment was tried. All pain and swelling disappeared and normal perspiration returned. She returned to, and is still at, work. She reported a short time ago (June 23rd) that her health continued to be satisfactory. She was able to walk several miles with ease.

In all my other cases except one the results have been very striking. They were not selected but taken just as they came, irrespective of age, condition, or duration of the complaint. Some authorities disapprove of blisters for patients in feeble health, but several of my patients were extremely feeble. In only one case, a patient much subject to dysuria, did strangury occur. It only lasted a few hours and yielded to copious water-drinking and the administration of hyoscyamus.

Finally, I would point out that beneficial results in these cases must not be expected from slight and transient counter-irritation. The irritation must be pronounced and prolonged *and applied at the right spots*.

Bournemouth.

NOTES ON CERTAIN FATAL FORMS OF PHARYNGEAL DIPHTHERIA.

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THERE are certain forms of diphtheria in which from experience a fatal ending can with certainty be predicted. The symptoms presented by these cases are as follows: 1. A greyish colour of the face, which in addition presents an anxious expression. 2. Vomiting. This seems independent of food and is not accompanied by nausea. It presents a similarity to cerebral vomiting. The vomited matter is yellow or green. 3. Abdominal pain. This is sometimes very severe. It is, however, nearly always present in these cases. It is referred to the umbilicus. No abdominal tenderness can be elicited. 4. Albuminuria. This is generally present and often to a large amount (from one-sixth to a quarter). There are no tube casts. 5. Suppression of urine is the rule in these cases. 6. Alteration in the rhythm of the heart sounds. This appears after the vomiting has set in. One of the sounds of the heart is reduplicated, thus giving an imitation of the sound to be heard when a horse gallops. The patients are generally very restless and consciousness is maintained until the end. The membrane on the throats in these cases is dark coloured and the smell of the breath is most offensive. During the last two years there have been eight of these cases admitted to the Newcastle City Hospital for Infectious Diseases. The patients were admitted at different periods of their illness but, as a rule, from the fourth to the sixth day. In Newcastle the patients rarely come into the hospital at an

earlier period of the disease. Antitoxin has not the slightest effect on these cases. 6000 units were generally given.

CASE 1.—The patient was a boy, aged five years, who was admitted on May 28th, 1906, on the sixth day of illness. The characteristic symptoms developed on the 30th—i.e., on the eighth day of illness—and he died on the 31st. On admission he had the grey, anxious look of these malignant cases but the symptoms of vomiting and re-duplicated heart sound did not show themselves until the day before he died. In him the apex beat was displaced downwards and outwards but this condition is not ordinarily present.

CASE 2.—The patient, a boy, nine years old, was admitted on August 4th, 1906, on the fourth day of illness. His mother looked after her children very well and so soon as symptoms of sore-throat developed she took him to her medical man who injected antitoxin and sent the boy into the hospital, where 8000 units of antitoxin were given on admission. At this time there was thick dark membrane, easily detachable and foul smelling, on both tonsils and uvula, and the cervical glands were much enlarged. On August 5th a large amount of albumin was present in the urine. On the 7th there was green vomiting, the pulse was slow and feeble, and the rhythm of the heart sounds was altered. The amount of urine passed was as follows: on the 6th, 20 ounces; on the 7th, 13 ounces; on the 8th, six ounces; on the 9th, four ounces; and on the 10th, two ounces. The patient died on the 10th. This case shows the uselessness of antitoxin even when injected early. In this patient the dangerous symptoms developed on the seventh day of illness.

CASE 3.—The patient, a boy, aged seven years, was admitted on the seventh day of illness with a nasal and pharyngeal diphtheria; the urine contained one eighth of albumin. The dangerous symptoms developed on the fourteenth day of illness and he died on the seventeeth day. A well-marked symptom in this case was sighing, which was followed by a slight groan on expiration.

CASE 4.—The patient, who was six years of age, was admitted on the fourth day of illness and he died on the seventh day. The characteristic symptoms were present shortly after admission.

CASE 5.—The patient was aged six years and was admitted on the eighth day of illness. The characteristic symptoms appeared exceptionally late—namely, on the nineteenth day of illness. The patient died on the twentieth day.

CASE 6.—The patient was three years old and was admitted on the fourth day of illness with nasal and pharyngeal diphtheria. The dangerous symptoms developed on the seventh day of illness and death occurred on the thirteenth day.

CASE 7.—The patient was a girl, aged two years and five months. She was admitted on the fourth day of illness, when 8000 units of antitoxin were given. The dangerous symptoms developed on the eighth day of illness and she died on the tenth day.

CASE 8.—The patient was aged five years and was admitted on August 17th last, on the fourth day of illness. Vomiting commenced on August 20th (i.e., on the seventh day of illness) and on the 21st (i.e., on the eighth day of illness) the heart sounds were heard to be reduplicated and abdominal pain was complained of. The patient died on the 24th.

These grave symptoms can appear early in the disease. In one case they appeared on the fourth day of the disease.

Examination of the swabs from these throats shows large numbers of streptococci and staphylococci associated with the Klebs-Löffler bacilli, and some observers (Roux and Martin) have been led to regard such an association as unfavourable, and, in fact, the cause of the fatal termination. Against it is the circumstance that these symptoms never develop in other septic diseases, such as scarlet fever, for example. The striking feature is the uselessness of antitoxin in these cases. It is possible that there are several kinds of diphtheria bacilli which elaborate different toxins and such toxins will be only neutralised by special antitoxins. If such be the case it would be worth while to have antitoxins prepared from the bacilli derived from these cases and used for such cases. Streptococci which were at one time thought to be alike have now been found to represent a number of distinct organisms and the same may be found in the case of diphtheria bacilli.

I am indebted to Dr. Henry E. Armstrong, the medical superintendent of the hospital, for permission to report on these cases.

Newcastle-upon-Tyne.

HOSPITALS AND TAXATION.—Mr. P. J. Langdon, the secretary of the South Devon and East Cornwall Hospital, was summoned before the Mayor of Plymouth on Sept. 23rd for keeping a male servant without a license. The male servant was the hospital porter and the hospital committee accepted the responsibility of the case. After some discussion it was agreed that the duty should be paid, and the summons was dismissed. The supervisor of taxes applying for costs against the hospital, the mayor said that the bench regarded it as somewhat of a hardship that the hospital should be called upon to pay but at the same time he had no option and he would pay the costs himself; however, the supervisor of taxes remarked that he himself was in sympathy with the institution and agreed to the remission of the costs

THE TREATMENT OF MAMMARY CARCINOMA BY THE LOCAL INJECTION OF PANCREATIC FERMENT.

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DURING the last year or so much has been written and much more spoken concerning the use of trypsin in various forms for the treatment of malignant disease, some advocating its use and publishing results [1] which made it hopeful that at last we had an agent which, if unable to cure the disease, had at least a favourable influence on the course of it, relieving the pain to a great extent, preventing the progressive loss of weight, and in some instances actually modifying the morbid process itself. The results obtained at the Clinical Research Laboratories of the Middlesex Hospital [2] and the conclusions drawn therefrom (results and conclusions with which the following cases entirely agree) seem to make it doubtful whether any benefit whatever can result from such treatment.

The following cases are interesting in many ways, more particularly because it was decided to treat a certain number of typical cases of malignant disease of the breast in various stages by these methods, together with the application of x rays and comparing the results with those obtained by the use of x rays only. Four cases of carcinoma of the breast were chosen, three of which had been operated upon and one fungating atrophic scirrhus, considered to be quite inoperable. Of the three cases operated on there was slight local recurrence manifest in two, and in the other no recurrence except a small and very questionable lump in the axilla. The applications of x rays were given through tungstate two or three times a week at intervals of two or three days, according to whether any dermatitis was present or not. The duration on each occasion was 30 minutes. For the first few injections Allen and Hanbury's sterile trypsin was used, followed afterwards by the same firm's trypsin co. (trypsin and amylopsin). Doses of 15 minims were commenced with, gradually working up to 30 minims. Fresh bottles were used on each occasion and strict aseptic precautions were observed in each case. The prick of the needle was always dressed afterwards with cyanide gauze soaked in collodion. The injections were usually made into the skin and subcutaneous tissue near the site of the growth, but occasionally into the arm. Excepting for slight relief of pain for about a week in the atrophic case and some improvement in the general condition of Case 3, especially as regarded the appetite during the period of the first six injections, no good whatever resulted either as regarded the disease itself or the general condition of the patient. In Case 2 very rapid dissemination and cachexia have occurred and already within a few months of operative treatment the patient is continuously confined to her bed. Comparing this with exactly similar cases, in which x rays were used alone, we cannot help thinking that the injections were the cause of the rapid dissemination. After a few injections the pain was in every case increased, and afterwards, when larger injections were used, inflammation and occasionally suppuration occurred, exactly the results obtained at the Middlesex Hospital.

Dr. Benjamin Moore in 1905 [3] pointed out, and it is now generally recognised, that there is a diminution of the gastric hydrochloric acid in almost all the cases of carcinoma not only of the stomach itself but of practically all other organs, and Dr. S. Monckton Copeman [4] suggests that the cachexia, loss of appetite, and general ill-health of patients suffering from the disease are consequent on the chyme which enters the duodenum from the stomach after a meal being insufficiently acid to stimulate an adequate amount of pancreatic secretion

[1] Nature and Treatment of Cancer, by Dr. J. A. Shaw-Mackenzie. London: Baillière, Tindall, and Cox. 1906.
[2] Archives of the Middlesex Hospital, vol. ix., Dr. Walter Ball and Mr. E. J. Fairfield Thomas.
[3] On the Absence or Marked Diminution of Free Hydrochloric Acid in the Gastric Contents in Malignant Disease of Organs other than the Stomach, Royal Society, March, 1905.
[4] Recent Research Work in Cancer, Practitioner, August, 1907.

necessary for proper digestion, and that any good in the shape of improved appetite, &c., which may result from the use of trypsin does so by supplying this deficiency. Case 2 seems to uphold this but in none did we find any prolonged good influence either on the pain or any other symptoms of the disease, and without doubt compared with these the cases treated by x rays alone are in a much better condition at the present time.

CASE 1.—The patient, a female, aged 69 years, was admitted to the x ray department of the London Hospital on June 12th, 1907. Her previous health had been good and there was no history of tubercle or of cancer. Commenced eight years previously with retraction of the left nipple. The breast and nipple had gradually been drawn upwards to the left axilla. The only treatment which she previously had had was boric lint and powders. The chief symptoms complained of were pain along the arm, which was worse at night, swelling of the arm at times, and the fœtid smell from the breast, all of which had been getting worse during the previous three months.

On admission there was a large cancerous mass consisting of breast and glands all drawn up towards the axilla, with a deep fissure along its surface, at the bottom of which was a fungating mass. The whole condition was atrophic and smelt horribly. The patient was considered to be quite inoperable and was treated by x rays and hypodermic injections of trypsin co. She had had 22 applications of x rays three times a week on alternate days and 23 injections of trypsin on the same days, commencing with doses of 15 minims for five doses and gradually working up to 30 minims, which she had on the last nine occasions. During the period after the first few injections she had some relief from pain, but after every subsequent injection the pain increased, the swelling of the arm became greater and the sleeplessness worse than ever, so much so that she continually required morphine. The wound was daily irrigated with hydrogen peroxide (ten volumes) which improved the smell and fungoid state, but otherwise the condition was much worse, other enlarged glands having appeared in several places. The swelling of the arm was less than it had been a few weeks previously owing to careful bandaging from the elbow upwards to prevent or lessen the œdema. The condition is spreading and the appetite extremely bad, as it has been all during the injection treatment. In this case no actual suppuration occurred, but there were lymphangitis of the arm and local acute inflammation on several occasions.

CASE 2.—The patient, a female, aged , was admitted on June 12th, 1907. The family history was good and her previous health had been good. The left breast was removed on April 8th, 1907. The usual scar was present; there was a recurrence in the axillary glands with some slight swelling and œdema of the arm. The patient complained of great pain when lying on the left side. She was given 20 applications of x rays and 15 injections of trypsin co. She experienced a great increase of pain after every injection. There was induration each time, with frequently a slight rise of temperature and the appearance of an impending abscess which generally resolved. The appetite was bad all through and did not improve in the least. During treatment the patient has become extremely ill, wasting rapidly, with a local and general dissemination, fresh nodules being evident in the scar, in the other breast, in the axilla, and on the surface of the abdomen, the back, and the legs. The only relief obtained was when under the influence of opium.

CASE 3.—The patient, a female, aged 71 years, was admitted on June 7th, 1907. She had been operated on for carcinoma of the right breast in November, 1906, and first noticed lumps in the skin in April, 1907. Five weeks before admittance the arm had begun to swell. On admission the arm was very much swollen and there were hard nodules in the skin around the scar and enlarged glands in the axilla and above the clavicle. She was given 20 sittings of x rays and 17 injections of trypsin co. For about the first three weeks she felt much better in herself and there was a great improvement in her appetite. She said that there was some pain after each injection but it was different from the pain which she had been suffering and she described it as if one pain killed another. This good effect soon passed off and the pain became worse than ever before, causing her to get practically no sleep at nights. There was generally a throbbing and burning pain after each injection, though no actual suppuration occurred. The condition is rapidly getting worse; the nodules were spreading in the skin around and the lumps in the axilla and above the clavicle are much larger and are increasing in size. The only rest which she is now able to obtain is by the aid of morphine.

CASE 4.—The patient, a female, aged 56 years, was admitted on May 23rd, 1907. The left breast had been removed. The usual scar was present but there was only one questionable lump to be felt in the axilla and this was difficult to distinguish from a thickened axillary fold in the scar of operation. She was given 15 sittings of x rays and 13 injections of trypsin co. in doses gradually worked up to 30 minims. The pain was increased on every occasion, sleep was prevented, the appetite did not improve a bit, and there was no good result. During treatment several fresh definite lumps appeared in the axilla. Since discontinuing the trypsin the pain in the breast and the arms has been less.

A CLINICAL STUDY OF PARALYSIS OF SUDDEN ONSET AND WIDE DISTRIBUTION:

FIVE CASES OF LANDRY'S PARALYSIS; ONE CASE OF ACUTE INFECTIOUS MULTIPLE NEURITIS; AND ONE CASE OF MYASTHENIA GRAVIS.[1]

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I HAVE chosen this subject for presentation at this Congress because the symptoms and course of the disease present in these cases were to a great extent the same, but the interpretation of the symptoms from a pathological and etiological standpoint differed widely. In this series of cases I report two cases of Landry's paralysis with recovery, three cases of Landry's paralysis with death, one case of multiple neuritis, and one case of myasthenia gravis.

CASE 1.—I was called in November, 1905, by the family physician to see a patient, a man, aged 30 years, with a previous history of having had an operation some years before for the removal of the coccyx. He had been in good health ever since but had always observed that there was some slight discharge from the region of the wound. When I saw him he was in bed with total flaccid paralysis of all the muscles of the lower extremities, the muscles of the trunk, and the muscles of the upper extremities. His respiration was laboured, the accessory muscles of respiration in the neck being strongly contracted with each effort of inspiration. The effort of swallowing was accompanied by marked choking and the attempt was given up. His temperature was normal, his pulse was 84, his reflexes were absent, his sensation was perfect, faradic contractility was present, and the diagnosis was made of Landry's acute ascending paralysis. As all treatment which has heretofore been tried in this disease has, as a rule, resulted in failure, I determined to give Credé's ointment of silver a fair trial. It was accordingly prescribed and it was rubbed into the spinal region night and morning until two ounces had been used. The only internal medication used was the fluid extract of ergot, one half-teaspoonful every three hours. The morning following my first visit the respiration was better, swallowing was more easy, and it was evident that the ascent of the disease had reached its limit. The further progress of the disease is best described by a gradual return of motion, first appearing in the distal muscles of the lower extremities and then involving the larger muscles. In two weeks motion had returned to all the muscles of the lower extremities and had begun to return to the muscles of the hand and forearm. In the third week contraction of the biceps was noticed. After six months the patient was walking and used his arms and hands with ease. At the time of writing the patient has no evidence of his previous disability with the exception of some atrophy of the muscles of the hand and an inability to stand upon his tip toes.

CASE 2.—I was called on Nov. 21st, 1905, by the family physician to see a little girl, aged four years, who had been in previously good health until the afternoon when she was suddenly stricken with paralysis of both lower extremities. So suddenly did the paralysis come on that the child, who was playing upon the floor a moment before, had in obedience to a call from her mother made an attempt to rise and found her legs were powerless. She was picked up, undressed,

[1] A paper read at the International Congress of Psychiatry and Neurology held at Amsterdam from Sept. 2nd to 7th, 1907.

and put to bed, and the family physician was sent for. Before he arrived the paralysis had invaded both upper extremities. I saw her the same evening. She was conscious, suffering no pain, but had absolute paralysis of the four extremities. The reflexes were abolished and sensation was normal. The temperature was normal. There was no paralysis of the bowels or bladder. Faradic contractility was present. On the next day I saw the child again in the evening and noted that in addition to the paralysis of the four extremities there was a marked effort of the accessory muscles of respiration. In spite of any treatment the child died at midnight, 55 hours after the onset of the disease. No necropsy was allowed.

CASE 3.—On Nov. 16th, 1905, I was called by the family physician to see a patient, 16 years old, who had been in her usual state of health until Nov. 15th. At that time, without pain, she lost all use of her lower extremities. The paralysis rapidly ascended the trunk and upper extremities until she was totally paralysed in 30 hours from the time of onset. I found her seated in a chair, the trunk bent well forward, and the head supported by a nurse. She was breathing rapidly, but said that she felt no discomfort. I tested her reflexes and found them absent, found sensation present, and found that there was no loss of control of the bladder or bowels. Faradic contractility was present. She was ordered fluid extract of ergot and Credé's ointment rubbed in freely along the spine. She gradually failed from the loss of power of the respiratory muscles, which was preceded by paralysis of the muscles of deglutition, and she died on the 20th, five days after the onset. No necropsy was allowed.

CASE 4.—On Nov. 30th I was called by the family physician to see a patient, a man aged 50 years, who was in bed with total paralysis of all four extremities. The previous history was that the man had been in his usual good health until Nov. 30th, when he felt a weakness in his legs and rather a sharp pain in the muscles of the right calf. He walked to a barber's shop with difficulty and sat in a chair to be shaved. When this operation was completed he tried to get up from the chair but found that he had lost all power in the muscles of the lower extremities. He was taken home and the family physician was sent for. Paralysis advanced rapidly from the muscles of the lower extremities to the muscles of the trunk and upper extremities, so that when I saw him, 48 hours after the onset, he was totally paralysed in all muscles below the neck. There were no loss of sensation and no loss of bladder or bowel control and the reflexes of the knees were absent. The reflexes in the plantar surface of the feet were present. The man had previously had a slight cold and as a result of the paralysis of the muscles of expiration he had not sufficient expiratory power to expel the mucus, and there was a loud rattle to be heard during respiration. I agreed with the family physician in the diagnosis of Landry's acute ascending paralysis, told him of my experience in the use of the Credé's ointment in one case, and suggested that we should use it freely. An ounce was rubbed in the back, thighs, and axilla in the following 24 hours. The first morning after my visit it was evident that the spread of the disease up the cord had been arrested. Respiration was quiet and the difficulty in swallowing, which was quite apparent the night before, no longer existed. The treatment of ergot and unguent Credé was continued. Six weeks from the onset there was some return of power in the muscles of the feet and hands. At no time was faradic contractility lost. In three months he had good use of the arms and legs.

CASE 5.—In December, 1906, I was called by the family physician to see a patient with the following history. He was a young man, aged 28 years, in previous good health, whose occupation was office work. He had started three days before I was called to go downstairs and walk to his work and complained that his legs felt heavy and that locomotion was difficult. He returned to his home and sent for the family physician, who at that time examined him and found that there was no paralysis, that the reflexes were normal and sensation was normal, and he advised him that the trouble was transitory and would probably pass away in a day or two. On the next day the legs were still more affected. The man became frightened and hysterical. On the third day the arms became involved and breathing was difficult. At that time I was called to see him. When I examined him I found the man sitting up in a chair with his body bent forward and breathing with great difficulty. There was an anxious expression. His hands and legs were absolutely without movement; sensation was normal. Electrical examination showed faradic contractility in all the muscles of the four extremities. The reflexes were normal. There was control of the bowels and bladder. I attempted to give him water but the difficulty of swallowing was so great that alarming choking occurred. A diagnosis of Landry's paralysis was made, the symptoms of the disease being all present as high as the respiratory centre. On the evening of the fourth day the man died. No necropsy was allowed.

CASE 6.—In the fall of 1904 I was summoned to see a patient by the family physician. I found a stalwart young man, aged 30 years, single, with a previous history of urethritis for the past six weeks. There was nothing unusual about this urethritis. The history given by the patient was that 48 hours before I saw him he was starting to dress and found difficulty in standing on his right foot, but he managed to dress and walked downstairs and kept about during the morning. As he felt himself getting weaker he returned to his room but found himself unable to walk upstairs; he, however, managed to get up on his hands and knees and went to bed. On examination I found paralysis almost complete of the two lower extremities and great weakening of the muscles of the arms. In this case I found tenderness along the sciatic nerve trunks and along the crural nerves. There was also tenderness along the nerves of the brachial plexus. There was diminished sensation in the skin of the four extremities. A diagnosis of acute infectious multiple neuritis was made and a favourable prognosis was given. He was under treatment for a period of three months. During this time the reflexes were lost, sensation became more and more blunted, and the faradic contractility was greatly impaired. He was treated on the theory of some toxic principle having caused the widespread inflammation of the nerve trunks. I used inunctions of unguent Credé freely and subcutaneous injections of the normal salt solution every eight hours for a period of two or three weeks. At each injection I used from eight to 12 ounces. Sensation was normal and the reflexes all returned and he was entirely recovered at the end of six months.

CASE 7.—In December, 1904, there came to me a man with a history of a purulent venereal sore about six weeks before the onset of a paralysis which affected the muscles of deglutition. Before the onset of the paralysis he worked for an estimated period of 45 days in five weeks. At the end of this time the first evidence of paralysis was noticed in a change of the quality of his voice. This was followed by difficulty in swallowing. This paralysis rapidly increased until the swallowing became fraught with danger and there was no sound from the glottis. Respiration was difficult and was carried on almost entirely by the aid of the accessory muscles of respiration. There was marked weakness of the muscles of both arms and legs but there was no paralysis of any muscle or group of muscles in the extremities. The patellar reflexes were much diminished; the Babinski sign was absent. There was no anæsthesia but he complained of paræsthesia in the arms and legs. Disturbances of sensation were described by him as a feeling of numbness such as is observed when the feet and hands are cold. Examination of the muscles of the extremities by the faradic current showed that the faradic contractility was not lost. The onset of this case, following as it did purulent discharge, and also following severe physical labour with excessive number of hours and deficient sleep, causes me to hesitate between the diagnosis of myasthenia gravis and acute bulbar paralysis. I called two laryngologists in consultation and they reported to me that the glottis was in a cadaveric position and that the aphonia was due to organic disease and not to hysteria. Dr. William C. Krauss was notified to attend the case in consultation with me. He was of the opinion that we had to deal with acute bulbar paralysis, but after a period of three months the paralysis had gradually disappeared. The muscles that were first affected recovered first. At the end of six months the patient had recovered sufficiently to be allowed to go home. A year later he was a robust, vigorous man entirely recovered and able to perform his duties as before.

The diagnosis in this case, considering the severe and complete exhaustion after his heavy work, and the respective facts that there was no actual paralysis of the muscles of the arms and legs and that there never was any tenderness along the nerve trunks, made it probable that we did not have a case of either Landry's paralysis or of infectious multiple neuritis. The physicians who saw him could never

be positive that it was not a case of acute bulbar paralysis, but because of the rapid recovery under the rest cure, with massage, faradic electricity, and large doses of strychnine, I have considered this case as one of myasthenia gravis.

In this series of seven cases the patients had many symptoms in common but they must be separated into different classes. The diagnosis of Landry's paralysis should be made in those cases in which the onset was sudden, in which the muscular paralysis passes from the lower extremities to the upper extremities, in which sensation is unimpaired, in which the nerve trunks are not tender, in which the bladder and rectum are not involved, and in which the electrical reaction is unchanged.

The diagnosis of acute infectious multiple neuritis was made in those cases in which there had been a previous disease, as in the case of paralysis following urethritis, in which the symptoms are general motor paralysis, disturbances of sensation, tenderness of the nerve trunks, atrophy, and change in the electrical reaction. I do not believe that it is always possible to make a positive differential diagnosis between cases of Landry's paralysis and acute infectious multiple neuritis, nor between myasthenia gravis and acute bulbar paralysis. It is only by the reporting of carefully studied cases, however, that we can hope some time to improve our classification.

Medical Societies.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Sept. 5th, Mr. H. H. Taylor, the new President, being in the chair.—The President showed a man with a Rodent Ulcer on the Eyelid.—Dr. C. F. Bailey showed radiographs of a Small Stone in the Kidney and also the stone after removal; also radiographs of an Unusual Deformity of the Hands, thought by him to be due to rheumatoid arthritis.—Dr. Walter Broadbent showed a Baby with only Two Toes on the Right Foot and an Angular Bend in the Tibia, possibly due to intra-uterine fracture.—The President read his inaugural address on "The Milk Supply." He said that, considering that milk should form the staple food of all children, too much attention could not be paid to the manner of its production and distribution. Children born healthy could nearly always be brought up to be strong men and women if properly nourished. The Inspector-General for Recruiting remarked on the deterioration of the working classes, about 30 per cent. of recruits having to be rejected as below the standard required, though that was a low one. Though great improvements had been made in housing, water-supply, and food generally, no improvements had been made in the milk-supply. In the ordinary cowshed the floor and walls were covered with dung, the udders of the cows were filthy, and the cans were often washed in well-water not thought good enough for drinking. The milk often stood for hours in a hot dusty station, and when it reached the town it was retailed to milk-sellers to hawk about the streets, and finally reached the houses full of every kind of germ and contamination. Preservatives ought not to be allowed, as they enabled stale milk to be sold as fresh. Adulteration was on the increase owing to the low standard of fat required by law. No reform would come among the farmers unless the public, by buying only from the cleaner farms, compelled them through their pockets, and the medical profession should instruct the public. Inspectors of cattle should be appointed by the Government and not by the local authority, since often the worst delinquents were county councillors who would find a means of dismissing any inspector who found fault with their cattle. It was possible that human tuberculosis was a modified form of bovine, and the slaughter of all tuberculous cattle would decrease the incidence of tuberculosis in man. He thought that the giving of certificates to approved dairies by the sanitary authorities of towns was a method which promised to promote improvement. In conclusion he proposed the following motion :—

That the Brighton and Sussex Medico-Chirurgical Society views with grave concern the deplorable condition of the milk industry in this country, and urges upon the Local Government Board the prime importance of introducing into Parliament at an early date a wide and comprehensive measure for its reform.

—This was carried unanimously and it was forwarded to the President of the Local Government Board.

Reviews and Notices of Books.

Diseases of the Lungs. By ROBERT H. BABCOCK, A.M., M.D., until recently Professor of Clinical Medicine and Diseases of the Chest, College of Physicians and Surgeons, Chicago. London: Sidney Appleton. 1907. Pp. 809. Price 25*s*.

THIS work on Diseases of the Lungs is "designed to be a practical presentation of the subject for the use of students and practitioners of medicine" and a careful perusal has assured us that the author has admirably succeeded in the task which he has set before him. Dr. Babcock explains in his preface that "the original contract between the publishers and the author called for a work of one volume which in approximately 1000 pages should cover the entire field of diseases of the chest." It was found, however, that such an arrangement would prove unsatisfactory, since it would necessitate too great a condensation to make the work of practical value. Consequently, the portion dealing with diseases of the heart and the arterial system was published in 1903 and we now have before us the second portion entitled as above.

The first chapter deals with bronchitis and in conformity with the general scheme of the work etiology, diagnosis, and treatment receive especially full and practical consideration. The remarks on the etiology of the disease are especially worthy of notice. A separate chapter is devoted to the discussion of pulmonary hæmorrhage. For the treatment of copious hæmoptysis Dr. Babcock speaks highly of the subcutaneous injection of $\frac{1}{80}$th or even $\frac{1}{15}$th of a grain of sulphate of atropine. Its effect is the speedy dilatation of the superficial capillaries, as shown by the redness of the skin throughout the body, and hence "the remedy bleeds the patient into his own vessels as it were." This is a logical method of treatment. A similar effect is produced by the inhalation of nitrite of amyl. Dr. Babcock does not mention this drug in this connexion but its administration in cases of hæmoptysis has yielded satisfactory results. We fully agree with Dr. Babcock's remarks on the use of ergot in pulmonary hæmorrhage; he is of opinion that notwithstanding its popularity it is not only irrational for bleeding due to erosion or rupture of a pulmonary artery but it is capable of doing harm. Ergot raises the blood pressure in the aortic system by contraction of the arterioles through stimulation of the vaso-motor nerves. Whether indirectly through its action on the aortic system or directly on the pulmonary vessels, ergot, therefore, raises the blood pressure in the lungs and defeats the purpose intended. Dr. Babcock realises that this drug is, and frequently has been, given for the relief of hæmoptysis and apparently with beneficial results, but he believes (and in this opinion we are in perfect accord) that it is in reality a matter of *post hoc*, not *propter hoc*. In other words, that if bleeding has ceased after the administration of ergot it has been in spite of, and not on account of, the drug. Another objection to this drug lies in the gastric disturbance which it so frequently creates. In concluding this subject Dr. Babcock speaks with no uncertain voice but he will doubtless be supported by a large number of physicians when he says: "From every standpoint, therefore, I feel compelled to raise my voice in protest against the use of this agent in cases of hæmoptysis."

No less than five chapters are devoted to the consideration of acute fibrinous pneumonia and these will well repay careful study. In discussing the etiology of the disease the influence of cold is duly dealt with. Dr. Babcock is of opinion that a sudden or prolonged chilling of the body cannot of itself produce pneumonia but it serves as the trauma which prepares the way for the subsequent action of

the germs. In other words, it impairs or destroys the protective power of the bronchial or pulmonary epithelium by occasioning some chemical or biological change in the cells by virtue of which the pneumococcus is enabled to find suitable soil for its growth. This view is now held by many authorities to be the correct one. The symptoms and physical signs of the disease are well described and some suggestive remarks are made as to its duration. It is generally known that the course of the malady may be protracted by complications or by delayed resolution. The last-mentioned possibility, however, furnishes a fruitful theme for discussion. It was formerly taught that instead of resolution taking place within a few days or a week, as is usual, it might be retarded by factors which were not altogether understood. Dr. Babcock points out that the opinion now seems to be gaining ground that the persistence of dulness, bronchial breathing, and even of crepitant râles is to be attributed not to slow absorption of the exudate but to its conversion into fibrous tissue—that is to say, the exudate undergoes organisation and that portion of the lung becomes permanently indurated. There is pathological evidence in support of this assertion. It must also be borne in mind that some cases diagnosed as "unresolved pneumonia" eventually prove to be instances of empyema. The treatment of acute fibrinous pneumonia is most ably and fully described. After some preliminary remarks on "various proposed modes of therapy," the author arrives at the conclusion that "woefully inadequate as are our weapons against this terrible foe to mankind, we possess no better mode of therapy than what is known as the expectant or symptomatic plan of management."

We can recommend to our readers a perusal of Dr. Babcock's remarks on the "general management" of a case of pneumonia; much useful information will be gained thereby. He is eloquent on the importance of a full supply of fresh air. He says: "We have all seen pneumonia sufferers in rooms and wards so close and hot as to cause a person entering from the fresh air of the outer world to feel faint and half sick. ..... Can anything be more absurd than to see an oxygen apparatus in a room the windows and doors of which are closed and the atmosphere stifling from heat and foul emanations from patient and attendants? The notion that a pneumonia patient must be protected from cold air and draughts originated at the time when this affection was considered an inflammation of the lungs resulting from exposure. The modern view of its pathology renders ridiculous the fear that fresh, cold air is harmful. In my opinion, even a draught is less dangerous than is the lack of proper ventilation." These words show that Dr. Babcock has the courage of his convictions, and in insisting on light coverings for the patients and the absence of the "cotton jacket" and heavy poultices he is carrying out a form of treatment which is being more and more adopted. He naturally has a high opinion of the advantages of cold as an antipyretic and gives minute directions as to the manner in which it should be employed. We have not space to dwell further on this subject but we consider that Dr. Babcock's views are founded not only on a large experience but also on sound scientific principles.

The subject of pulmonary tuberculosis justly demands the most full consideration and eight chapters were found necessary in order to accomplish this. Although heredity in connexion with this disease does not occupy the prominent position in regard to etiology that it once did, yet we consider that Dr. Babcock's contentions go too far in the opposite direction. We find a little difficulty, also, in ascertaining his exact meaning. In discussing the "natural lack of tissue resistance," he says: "Whereas I do not any longer believe in congenital predisposition (i.e., tuberculous diathesis) as the main or even an important etiological factor, I do yet believe that not all individuals are equally prone to pulmonary tuberculosis." Then, further on, he remarks:—"I still cling to the view that by reason of an inherited or congenital weakness of constitution the descendants of tuberculous forebears are more liable to develop pulmonary phthisis than are children of a more rugged stock." Again, when giving a summary of his views, he says:—"Finally, the so-called tuberculous diathesis or inherited predisposition to consumption is a belief based on wrong hypotheses. The whole subject must be looked at from the viewpoint of infection and not hereditary tendency." The above statements are rather difficult to reconcile, for the difference between "tuberculous diathesis," "inherited predisposition," and "an inherited or congenital weakness of constitution" is so slight as to resolve itself into one of terminology only. The elaborate statistics evolved from the various life assurance societies bring out one cardinal fact, that is, that applicants who have lost near relatives from tuberculosis show an excessive mortality from this cause. There is certainly a tendency at the present day to decry the influence of heredity in connexion with tuberculosis but care must be taken that extreme views do not prevail.

With regard to another debateable point also Dr. Babcock asserts his strong belief in infection as being the main element in the spread of the disease, and that is in reference to "compulsory registration." He says: "The fact is that this measure is so fundamental that unless it be carried out no adequate prevention of this disease can ever be attained." This may eventually prove to be correct but there are serious objections to the enforcement of compulsory notification. There are many authorities who doubt its efficacy and who believe that as much can be done by a continuance of those measures which have already so materially lessened the mortality of the disease. The improvement of the dwellings of the working classes and the instruction given to patients and their friends by medical practitioners are most potent factors in combating the disease.

In conclusion, we can say that Dr. Babcock's work is one of the best manuals on diseases of the lungs which we have seen. His style of writing is pleasant and rivets the attention. In addition, the printing of the book is good and the illustrations are excellent. We cordially recommend the work to our readers.

Foods and their Adulteration. By HARVEY W. WILEY, M.D., Ph.D. With 11 coloured plates and 86 other illustrations. London: J. and A. Churchill. 1907. Pp. 625. Price 21*s.* net.

THE American Government promises to lead the way in regard to legislation having for its object the purity of foods and food products and the protection of the public against misrepresentation and adulteration. New measures are contemplated which if carried into effect will place severe but justifiable restrictions upon many manufacturers of food products. The issue at the present moment of this work by Dr. Wiley, who is the official chemist in Washington, is therefore of particular interest. Its contents no doubt reflect the experiences which the author has gained in the course of his onerous official duties. He takes, and very properly so, a high ethical view of the question, and no doubt he has been blamed by the representatives of some trades for exacting a high ideal; doubtless also he has been stigmatised by others as one who is needlessly interfering with legitimate trade practices and, by his official influence, threatening to inflict hardships upon certain food industries. For our own part, we are confident that Dr. Wiley has acted conscientiously throughout and that he has been jealous of the public health and the public good whilst anxious to avoid unnecessary interference with trade interests. We are certain that if the governments of all civilised countries would adopt a strong attitude in regard to suppressing the manipulation of foods with objectionable

ingredients manufacturers would be forced to give way and to direct their energies to the supply of foods to which no objection could be taken either in regard to their description or to their particular mode of preservation. As the author says in his preface, honest and truthful practices of manufacture and labelling are to be promoted in every possible manner and in the end the true, the ethical, and the just in these practices will prevail.

The book before us covers a good deal of the ground but not all. We may anticipate, however, that the cordial reception which it is sure to receive will induce the author to proceed further. For the present we must be content with the foods now dealt with. After a chapter of generalisations Dr. Wiley proceeds to the consideration of meats and meat products. In this section he deals with the preparation of animals prior to slaughter, the composition of various kinds of flesh, the preservation of meats, the value of meat extracts, and so on. He refers to yeast extract as an adulterant of meat extract but apparently does not seem to be acquainted with a better method of determining yeast extract than that which depends upon the production of turbidity when zinc sulphate is added to a strong solution of meat extract containing yeast extract. In Part 2 we come to a consideration of poultry, eggs, and game birds, which is necessarily a short section. This is followed by a more important part dealing with fish foods, in which the composition of the edible portion of various fishes, including shell-fish and turtle, is given. Next he proceeds to discuss milk and milk products and this section is succeeded by a chapter of special interest on cereal foods. We find here some noteworthy observations on the effect of modern milling methods on corn products. These methods of preparing the flour, although so common, are not, the author says, to be preferred either by reason of palatability or nutritive properties of the products. The old-fashioned milling process, he adds, makes a more palatable and more nutritious diet and affords a higher degree of heat and energy. In regard to proprietary breakfast foods he says what we believe to be true, that people of limited means can be safely advised on the score of economy, palatability, and nutrition to prepare their own cereals for ordinary breakfast purposes. Then follows a section on vegetable condiments and fruits, which in its turn is succeeded by a section on vegetable oils, fats, and nuts.

It will be gathered that the book is designed not so much for the use of the analyst as for those readers who desire to have a knowledge of the value of foods. Nowadays, when such extravagant claims are made in favour of so many widely advertised foods, it is important that the public should have some knowledge of the composition of food and of the individual value of its constituents. Dr. Wiley has written his book with the excellent object of instructing the public and manufacturers on these points, and we are bound to say that he has presented his facts, both chemical and physiological, in a way which should be easily "understanded of the people." Common sense is written on every page. The following is a specimen taken from the introductory chapter. "We are all familiar," he says, "with the advertisements of foods to feed the brain or the nerves or the skin. It is hardly necessary to call attention to the absurdity of claims of this kind. One part of the body cannot be nourished if the other parts are neglected, and the true principle of nutrition requires a uniform and equal development and nourishment of all the tissues. It is true that many of the tissues have predominant constituents. For instance, in the bones are found large quantities of phosphate of calcium and in the muscles nitrogenous tissues dominate. In the brain and nerves there are considerable quantities of organic phosphorus. All of these bodies, however, are contained in normal food properly balanced." We can commend heartily Dr. Wiley's recent work and hope that he will pursue the subject further and will give us his views on malt liquors, wines, and spirits.

LIBRARY TABLE.

Some of the Clinical Aspects of Pneumonia. By DONALD W. C. HOOD, C.V.O., M.D. Cantab., F.R.C.P. Lond. London: John Bale, Sons, and Danielsson, Limited. 1907. Pp. 117. Price 7*s.* 6*d.* net.—This book is largely a reprint of clinical lectures and demonstrations delivered at the West London Hospital, to the post-graduates attending the practice of the hospital, and as might be expected from this circumstance it is severely practical in character. Most of the numerous difficulties of diagnosis, prognosis, and treatment that may beset the general practitioner in dealing with the varied symptoms to which the name pneumonia is applied receive attention, and in many cases Dr. Hood gives illustrations from his hospital or private practice in support of his pathological teaching and therapeutic recommendations. He considers that the treatment of pneumonia resolves itself largely into the management of a patient suffering from the effects of a poison attacking a vital organ, and that this essentially toxic condition demands for its treatment an abundance of pure fresh air, dietetic treatment, and a few drugs when simple diaphoresis, tonic support, or purgation is required, among which he finds a place for alcohol. He is absolutely opposed to the use of the powerful synthetic remedies, preferring to trust to tepid sponging in pyrexia, with, perhaps, the assistance of quinine or alcohol. The general practitioner, especially the recently qualified man, will find this a very valuable little book, but the price demanded for it is surely somewhat high.

Invertebrate Zoology. By G. A. DREW, Ph.D. London: W. B. Saunders Company. 1907. Pp. 201. Price 5*s.* net.—This little manual has for its basis a set of laboratory directions prepared by a staff of instructors to meet the needs of the students at the zoological classes at the Marine Biological Laboratory at Woods Holl, Massachusetts. The author rightly suggests that few instructors will find it desirable at their own classes to compel their students to follow the whole procedure proposed in any handbook. Every teacher must exercise his individuality and the average needs of every class vary in detail, but we consider Dr. Drew's manual to be a particularly useful little work, for it is not only arranged in an orderly manner but the salient points are given proper prominence, so that the time of teacher and taught alike would be economised by following out the plan laid down.

The Midwives' Pocket Register and Case-book. By R. J. BLACKHAM, L.R.C.P. Edin., L.M. Dub., D.P.H. Lond., Major, R.A.M.C. London: Henry Kimpton. 1907. Pp. 29 and tables.—This little volume has been prepared to provide practising midwives with a convenient substitute for the bulky official register. As Major Blackham points out in a prefatory note, midwives in practice are required to keep a register of cases, but the official book issued for the purpose measures 13 inches by 8 inches, dimensions which make it not easily portable. The Pocket Register, the dimensions of which are 5½ inches by 4 inches, provides space for keeping a complete record of the labour and puerperium of 50 cases, a number which is probably in excess of the average attended by a midwife in a year's ordinary practice. The little book also includes the rules laid down by the Central Midwives Board for regulating the practice of midwives, to which rules some valuable practical notes have been added by the author, together with some brief remarks on the care of infants arranged in the form of a decalogue which it is suggested that the mother might well learn during the enforced leisure of the latter days of her puerperium.

Lessons in Disinfection and Sterilisation. By F. W. ANDREWES, M.D. Oxon. Second edition. London: J. and A. Churchill. 1907. Pp. 222. Price 3*s.* 6*d.* net.—Dr. Andrewes has done well to bring out a second edition of his practical little work—an expansion of a course of lectures to the nursing staff of St. Bartholomew's Hospital, which now includes an elementary course of bacteriological instruction as well as a scheme of practical experiments illustrating the processes of disinfection and sterilisation. The book has been written from the point of view, as is stated more than once in the text, that while a short practical course in the laboratory will do far more in teaching the principles of disinfection than the reading of many treatises, the average nurse cannot be expected to take out such a course. Consequently the experimental section which illustrates the lessons in bacteriology makes no demand on any familiarity with microscopic technique, but consists of what the author terms "naked-eye bacteriology" throughout. The result is a most useful little book; indeed, we quote these following words in a prefatory letter from Professor Klein on purpose to endorse them: "Every nurse and every person who is brought in contact with the sick room will from this book be able to gather a most useful, correct, and intelligible account of the manner of preventing contagion and of neutralising and destroying contagia."

A Text-book of Plant Diseases Caused by Cryptogamic Parasites. By GEORGE MASSEE. London: Duckworth and Co. 1907. Pp. 472. Price 6*s.* net.—The author of this book is the principal assistant at the Kew Herbarium, and his knowledge of cryptogams is shown by this interesting volume to be very extensive. The aim of the book, as stated in the author's preface, "is to enable those persons directly occupied in the cultivation of plants, and with but a limited period of time available for study, to determine the nature of diseases caused by parasites of vegetable origin"; and "to apply in the most approved manner those curative and preventive methods which experience has shown to be most successful in combating the particular form of disease under consideration." The author has also aimed at showing his readers how to include in the daily routine of horticultural work precautionary measures which, without being costly, would often prevent a slight disease from assuming the proportions of an epidemic. It will be seen that the work, which to our mind succeeds very exactly in its objects, has no direct medical application; but some of the disease processes described bear a curious resemblance to pathological results in the human subject, and readers who may not be interested from any sociological or selfish point of view in the knowledge that gigantic sums are lost to this country yearly through the ravages of vegetable parasites may none the less find Mr. Massee's book very suggestive. Those who are familiar with Mr. Jonathan Hutchinson's instructive views and remarks upon plant pathology will find in Mr. Massee's book material for advancing their knowledge along a most interesting path of research.

Analogy of Religion, Natural and Revealed, to the Constitution and Course of Nature. By JOSEPH BUTLER, D.D. Edited by the Right Hon. W. E. GLADSTONE. Oxford: University Press. 1907. Pp. 423. Price 1*s.*—Among many volumes of the World's Classics, the extremely valuable series of reprints which Messrs. Henry Frowde and Co. are now publishing at moderate prices, there is not one that we are more pleased to see in a cheap and convenient form than Butler's Analogy in the shape laboriously prepared by his earnest student, the famous Prime Minister of England. Butler's Analogy may be an old-fashioned work, but it remains a model of argument from its debateable premisses, and a monument of eloquent ingenuity. Mr. Gladstone, considering that the tissue of Butler's thought is closer than that of any of the ancient philosophers except perhaps Aristotle, came to the conclusion that the difficulty of mastering his ideas was seriously aggravated by want of references and cross-references, sectional divisions with their headings, and a good index. These defects he set himself to repair and the result was an edition of the great work of the famous bishop wherein it was easy for the ordinary student to find his way. It has been said that as Newton unfolded the system of nature so Butler explained the system of grace, and certainly Butler's work has always been a favourite one with scientific men, usually ready to regard theological disquisitions as the splitting of straws. Many of our readers may like to renew their acquaintance with the Analogy now that it is placed so easily within their reach.

The Health of the State. By GEORGE NEWMAN, M.D. Edin. London: Headley Brothers. 1907. Pp. 199. Price 1*s.* net.—This little book is the second volume of the Social Service Series, an issue of authoritative manuals on topics of sociological importance now appearing under the general editorship of Mr. Percy Alden, M.P., who himself wrote the volume on "Housing" with which the series commenced. Dr. Newman has only attempted to deal in plain language with some of the more important problems of public health, having regard to the fact that he is addressing a lay audience, but the complete familiarity with every detail of his subject that he possesses is very exactly shown by his knowledge of what to insert and what to omit. It is in matters of State medicine that the layman and the medical man really meet in common conclave, and it is particularly important that those citizens who desire of their free will to render social service to the State should possess adequate knowledge which they can bring to bear upon public authorities for the proper control of the health of the community. Dr. Newman, the newly elected Chief Medical Officer to the Board of Education, has been medical officer of health to the borough of Finsbury and lecturer on public health at St. Bartholomew's Hospital. He has every qualification, both as expositor and first-hand worker, for writing a manual addressed to the people at large, and we congratulate him upon the result. He is not content with recording unfortunate conditions; he is ready to suggest remedies. At the end of the chapter dealing with the hygiene of childhood, for example, he appends a list of "musts" and "shoulds" with which all medical men will agree. He says that school children *must* be fed, medically inspected, and, if mentally backward, specially instructed; he says that the elements of temperance and domestic hygiene *should* be taught in properly drained and ventilated buildings, and that neglectful parents *should* be punished. A similar directness pervades a very valuable little book.

The Birds of the British Islands. By CHARLES STONHAM, C.M.G., F.R.C.S. Eng., F.Z.S. With illustrations by LILIAN M. MEDLAND. In 20 parts. Part 7. London: E. Grant Richards. 1907. Price 7*s.* 6*d.*—The contents of the seventh part of Mr. Stonham's most interesting work include descriptions of the corvidæ—the jackdaw, the raven, the carrion crow, the hooded crow, and the rook; of the larks, the woodpeckers, the swift, the wryneck, the night-jar, the nut-cracker, and several other rare or accidental visitors to our shores. As in the previous parts Mr. Stonham shows himself an excellent blend of scientific and field naturalist, while Miss Medland's illustrations continue to fulfil the sound promise of the earliest issues. She has two limitations to deal with—firstly, some birds, for example, the raven and the crow, have to be drawn to a scale reduced from life to enable their presentment to get into a page; and, secondly, the pictures are all in black and white. When these things are taken into account we consider the pictures admirable, while she has seized upon points mentioned by Mr. Stonham in the text and

made her drawings illuminate his words. The picture of the night-jar, for example, shows very well the characteristic pose of the bird along the branch, the bark harmonising so truly with the ash-grey, brown, and bronzish markings of the plumage that the bird escapes notice effectually. Mr. Stonham's intimate acquaintance with his subject peeps out on every page, for there is hardly a bird on whose habits he has not some characteristic remark to make.

Matter and Intellect. By ANDREW ALLAN. London: A. Owen and Co. Pp. 224. Price 5*s*.—This is a little book the contents of which might be inferred from its claim to be a reconciliation of Science and the Bible, and might be more certainly deduced from its closing sentence: "I raise no altar to the Unknown God, for how can we worship That which we do not know? Yet there are only three things in this world in regard to which we possess positive, unquestionable, and first-hand knowledge. We know that the earth is beneath our feet—That is Matter: we know that the sun is shining—That is Energy; and we know that a stone unsupported falls to the ground—That is Law or Will. MATTER, ENERGY AND WILL—Three in One and One in Three—This is THE GREAT I AM." Those who think with the author will hardly need the book; those who do not hold his views, whether because their creed is more or less transcendental, are not in the least likely to be converted by the powers of argument which he displays.

Health in the Home Life. By HONNOR MORTEN. London: J. Clarke and Co. 1907. Pp. 170. Price 2*s*. 6*d*. net.—The obvious things are said in this book upon health in the home and upon what may be called domestic surgical and medical emergencies. There is no more originality shown in the directions given to the nurse than in those given to the public, but in her excursions into medicine Miss Morten occasionally tells us a thing or two of which we were in ignorance. The advice is given now and again "to send for the doctor," but it is difficult to gather exactly when, according to Miss Morten, domestic self-help should be relied upon and when expert assistance should be summoned. The necessity of calling in a surgeon is recognised in the treatment of hernia, fractures, and "convulsions," but the readers are apparently expected to be able to deal with the common dislocations, colic, "fits," and burns without professional aid. The information conveyed in the chapter on contagion and disinfection is too scrappy to be of much practical value and the author would appear to know more about schools for girls than schools for boys. We regret not to be able to give a warmer welcome to a book obviously written with the idea of raising the standard of health in the home by increasing the knowledge of the heads of households. The object is good and to some extent the book has done what is intended of it, but as a whole it is not successful.

The Great Eastern Railway Company's Tourist Guide to the Continent. By P. LINDLEY. 1907. Pp. 111. Price 6*d*.—The features of this practical little guide are an excellent series of continental maps and some useful particulars of new tours in Holland, in North and South Germany, and Belgium. The less known side valleys of the Rhine come in for interesting notice, while scraps of information, sometimes quite well illustrated by photograph or pencil, are given of such old Flemish towns as Ghent, Bruges, and Ypres. The object of this guide is to stimulate us to travel, and it can hardly fail to put its reader into the desired mood.

JOURNALS AND MAGAZINES.

The Haslemere Museum Gazette. By JONATHAN HUTCHINSON, F.R.C.S. Eng., LL.D., F.R.S., assisted by E. W. SWANTON, Curator of the Haslemere Museum. Vol. I. 1906–07. London: J. Bale, Sons, and Danielsson, Limited. Pp. 622. Price 7*s*. net.—This volume offers a perfect feast of objective education and field-study. The illustrations include portraits of Cobbett, Albert Durer, Charlotte Corday, and Fénélon; the ova of a lackey-moth on a twig; Kit's Coty House; a currant leaf infested with the fungus *Cronartium ribicolum;* a rook's head with a malformed bill; and the list might be greatly prolonged, every example showing the wide range of subjects which has fallen under the learned notice of Mr. Hutchinson, the conductor of the *Gazette.* The literary matter rivals the illustrations in diversity, the idea of the conductor being to encourage the formation in as many centres as possible of educational museums similar in scope and object to the one which he has founded at Haslemere, and the underlying aim being to stimulate the public to first-hand observation of all sorts. Among the special headings under which the contents of the *Gazette* are ranged are extracts from expository lectures delivered in the museum at Haslemere; descriptions of specimens and notes of field natural history, astronomy, and geology; and portraits, under which heading especial attention has been given to the history of race and the conditions which influence alike physiognomy and character. There are particularly interesting notes scattered throughout the *Gazette* upon plant pathology, a subject to which medical observers might perhaps turn their attention more minutely, for the similarity between certain of the morbid processes to be found in the vegetable kingdom and those prevalent in the animal kingdom seems to promise valuable information as the reward of research. We trust that the skill and energy displayed by Mr. Hutchinson and Mr. Swanton in compiling this interesting volume will be repaid by the securing of a large circulation and by the creation of a general movement in favour of the establishment of such museums as the one at Haslemere in many provincial centres. But where are the provincial centres to obtain the philosophers to act as honorary curators of their museums and honorary editors of their records? Haslemere has Mr. Hutchinson, and Mr. Hutchinson's knowledge of men and things is without parallel in range, while his willingness to diffuse that knowledge is unstinted. We do not suggest that all the local centres should await the arrival among them of a Jonathan Hutchinson, for that would be to condemn the movement for the establishment of local museums *ab initio,* but a local museum of observation cannot be started, we fear, without the benevolent autocracy of a learned and generous philosopher, while the blend of wisdom and altruism required is very scarce.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

SPERMINE (KALENICHENKO).
(AD SIEMSSEN, 3 AND 4, WATER-LANE, GREAT TOWER-STREET, LONDON, E.C.)

THIS extract is prepared in the laboratory Kalenichenko of Moscow under the personal supervision of medical men. It contains the peculiar principles of the extract of animal testicle and is regarded as a valuable therapeutical agent in the treatment of neurasthenia, impotence, and wasting diseases. More recently the extract has been used with, it is stated, good results in cases of diabetes mellitus. The fluid submitted to us was of a light sherry-like colour and is evidently an alcoholic extract, suitable flavouring agents being present also. Precautions are taken, it is said, to insure that the glands (bovine testes) are healthy. It would appear that in the preparation of this extract particular care is taken to obtain a pure and active material.

MUSCATOL.

(FRANK A. ROGERS, 327, OXFORD-STREET, LONDON, W.)

Muscatol is described as a preventive of insect bites. We have tried it practically and it certainly seems to ward off the attacks of these irritating pests. Insects are a real source of trouble to sportsmen and others and the demand for a preventive is widespread. Muscatol appears to us to be a spirituous solution of certain essential oils. It is pleasant and its application is soothing.

TABLOID GINGAMINT.

(MESSRS. BURROUGHS, WELLCOME AND CO., SNOW HILL-BUILDINGS, LONDON, E.C.)

This is a satisfactory formula when an effectual antacid and stomachic is indicated in the relief of certain dyspeptic symptoms. Each tabloid contains 5 grains of sodium bicarbonate, $\frac{1}{12}$th grain of ammonium bicarbonate, with gingerin, saccharin, and oil of peppermint. This combination is well known to influence favourably appetite and digestion and is of value also in relieving griping, while it excites a gentle stimulant effect.

GLENDROSTAN WHISKY.

(ALEXANDER MACKENZIE, 43, CHURCH-STREET, INVERNESS.)

It is satisfactory to find that this whisky answers to both the test of the palate and of analysis in accordance with its description. It is a fully matured, all-malt, pot-still spirit. It is peculiarly "soft" as regards its flavour and also somewhat "dry"—characteristics which afford evidence that the spirit is thoroughly matured. The results of analysis show an amount of ethers practically equivalent to that contained in genuine brandy. Other by-products, aldehyde, furfural, and higher alcohols, were present in amounts coinciding with those invariably found in genuine old malt whisky. The colour is somewhat dark, owing doubtless to contact with the cask. The whisky conforms to the standard of genuine old all-malt whisky.

CALYX CORNFLOUR.

(H. N. BATHGATE AND CO., ATLANTIC HOUSE, COLLEGE-GREEN, BRISTOL.)

We have already referred to the superior quality of this cornflour but it has since been modified in an important way as a dietetic product chiefly by the addition of milk protein. The procedure may be regarded as dietetically sound since it is well known that cornflour is an excellent vehicle for protein foods. The absorption of cornflour in the intestine is very complete owing to the easy digestibility of the starch. A mixture of this digestible carbohydrate with milk protein should prove, therefore, to be a valuable food. According to our analysis the milk protein occurs to the extent of 9 per cent., which is a judicious proportion. As a rule, the quantity of protein added to foods is in excess of physiological indications. This preparation also contains 2 per cent. of calcium phosphate which is, of course, the normal mineral ingredient of cereal foods. When prepared as directed the preparation affords an agreeable food possessing a slight malty flavour due to the addition of a small quantity of malt. Our analysis was as follows: moisture, 11·90 per cent.; milk protein, 9·0 per cent.; mineral matter, 2·10 per cent.; and starch, 77·0 per cent.

INVALIDS' AND INFANTS' BISCUITS.

(S. PETERS AND CO., 59, PARK-ROAD, LEYTON, E.)

These biscuits are well made and are prepared from nutritious materials. These include eggs, besides milk and flour. Their nutritious value is accordingly satisfactory, the protein amounting to 14·11 per cent. and the mineral matter to 1·30 per cent. Egg fat was readily extracted. The mineral matter contained an abundance of phosphate. The biscuits are very palatable and are evidently carefully baked, their spongy character being due, of course, to the disengagement of gas during fermentation.

GRAY'S TONIC.

(E. J. REID AND CO., 9, 10, AND 4, DUNEDIN HOUSE, BASINGHALL-AVENUE, LONDON, E.C.)

There is no secret about the formula of this preparation, while it is being introduced, it is stated, to the notice exclusively of medical men and not to that of the public. It is a combination suggested by a medical man in the United States, and is described as a combination of glycerine, gentian, taraxacum, phosphoric acid, sherry, and carminatives. The taste is pleasant and its administration is without unpleasant effect on the gastric functions. It is spoken of as a useful tonic in nervous exhaustion and general debility. It is free from iron and does not give rise to the disturbing effects of ordinary iron salts. It contains 11 per cent. of alcohol as a menstruum. The formula appears clinically to be a satisfactory one.

CRESSIDI'S CIGARETTES.

(CRESSIDI AND CO., 115A, QUEEN'S-ROAD, BAYSWATER, LONDON, W.)

Of a not particularly distinguished flavour, though they are very mild, these cigarettes are evidently made from a good quality Dubec leaf. The smoke is, comparatively speaking, unirritating and cool, whilst the tobacco itself is practically free from dust.

New Inventions.

A NEW PATTERN OF NASAL SCISSORS.

FOR the last six months I have been using a pattern of nasal scissors which has some new and, I think, useful points. The action is the same as the ordinary Grünwald's forceps but the cutting blades are placed at an obtuse angle with the shank and the cutting edges have slight saw teeth which prevent their losing grip of any hard substance. I have found them useful for removing the posterior ends of

the inferior turbinates; to perform this they are passed as an ordinary Eustachian catheter, the blades opened, and then drawn over the end of the turbinate. They also can be used for removing the anterior end of the middle turbinate. They are made with the blades angled to the right or left. Messrs. Mayer and Meltzer have carried out my ideas with their usual skill and attention to detail.

Shrewsbury. C. G. RUSS WOOD, F.R.C.S. Eng.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.—The opening lecture of the winter session of the North-East London Post-Graduate College and of the North-East London Clinical Society will be given by Dr. W. Hale White at the Prince of Wales's Hospital, Tottenham, N., on Thursday, Oct. 3rd, at 4 P.M. The subject of the lecture, to which all qualified medical practitioners who are interested are invited, will be the Various Conditions causing Enlargement of the Liver.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 28, 1907.

Medical Practitioners and Medical Referees under the Workmen's Compensation Act, 1906: The Legal Position.

WE published last week a letter from Mr. A. BENTHALL who refers with approval to the regulations issued under the Workmen's Compensation Act, 1906, on the ground that they authorise the attendance of a medical practitioner on behalf of those whose cases under the Act are submitted, on dispute arising, to medical referees. The class of cases referred to is that in which a workman has been suspended or has claimed from a certifying surgeon a certificate of disablement in order to entitle himself to the benefits of the Act. The reference to the medical referee is to be ordered by the registrar of the county court on the application of the employer or of the workman when one or the other is aggrieved by the granting or the refusal of such a certificate. The medical man, therefore, who, according to our correspondent, will be able to appear before the medical referee and, so to speak, to make good his view of the patient's case on behalf of the employer or of the patient will be one who has examined the workman on behalf of the employer or who has treated him as his medical attendant. Possibly it is intended to be suggested that the certifying surgeon also may be present, as he too presumably would be interested in seeing his certificate upheld and in defending it. We can quite well understand that a medical man who has attended a workman or who has examined him on behalf of an employer should desire to be present in order that his opinion as to the case and as to the matters which he has observed should be fully considered by the medical referee, and it is from the point of view of the practitioner so situated that our correspondent has written. With regard to the certifying surgeon, we are inclined to doubt whether he would often have the time or the inclination to attend gratuitously even in order to defend his decision, and to do so would be inconsistent with his position. He is himself an independent judge whose decision has been appealed against.

With regard to the medical referee, the matter may to some extent be left to his discretion, but we are inclined to think that he will prefer to check personally and without assistance matters of observation recorded by others and submitted to him in writing. The question whether the presence of other medical men is desirable or not is no doubt one which may fairly give rise to discussion, but we are disposed to doubt whether the regulations are as clear in allowing it as is argued by Mr. BENTHALL. The regulations prescribe in detail the formalities to be observed by the employer or the workman according to their respective circumstances when aggrieved by the decision of a certifying surgeon. Those material to the question which we are discussing are as follows:—

9 (*a*). Any application under the foregoing regulations shall be made in writing and shall state the grounds on which the reference is asked for in accordance with the form prescribed in the schedule to these regulations, or as near thereto as may be. (*b*) The application shall be accompanied by the certificate, or a copy of the certificate, obtained from the surgeon by whose action the applicant is aggrieved, and by any available report or reports of any medical practitioner by whom the workman has been examined; and if the applicant is an employer by the notice of disablement or suspension served on him by the workman, and by an undertaking to pay any reasonable travelling expenses incurred by the workman in attending for examination by the medical referee. (*c*) The applicant shall also file with the registrar such copies of the application and other documents as aforesaid as may be necessary for the use of the medical referee and of the employer or workman, as the case may be, hereinafter referred to as the respondent, who, together with the applicant, is directly interested in the application.

14. The medical referee shall, on receipt of an order of reference duly signed by the registrar of a county court, together with copies of the documents required to be sent therein, fix a time and a place for a personal examination of the workman, and shall send notice to the employer and the workman accordingly. It shall be the duty of the workman, and, if the employer is the applicant, of the employer, or a person duly authorised by him, to attend at the time and place fixed by the medical referee, and in the event of failure on the part of the workman or employer, or both, to appear as required by this regulation, the medical referee shall decide on the matter referred to him forthwith upon such information as shall be available, and with or without a personal examination: provided that where the absence of the employer or his representative, or of the workman, is shown to the satisfaction of the medical referee to be unavoidable, or where the medical referee considers it necessary to apply for expert assistance as hereinafter provided, it shall be open to him to adjourn the inquiry on the reference and to resume it at such a time and place as he may fix, having given due notice to all persons concerned.

15. Except as otherwise provided by Regulation 14, the medical referee shall, before deciding on the matter referred to him, make a personal examination of the workman, and shall consider any statements made or submitted by either party.

In addition to these regulations the notice required to be given by a medical referee to a workman as to the holding of an inquiry contains the passage: "Any statement made or submitted by you shall be considered," which is also found in the notice to be given to an employer, together with the following, to be used when the employer is the appellant: "You, or some person duly authorised by you, are hereby required to attend at the above time and place."

Referring first to the last-quoted sentence, and to the passage in the regulations bearing upon it, there seems little doubt that under it an employer might choose to be represented by a medical man, but it is unlikely that he would be allowed to gain any advantage thereby not within the reach of the workman. Turning to the other passages quoted it would appear that their meaning is that written statements of the conditions found to exist in the workman made either by his or by the employer's medical man can clearly be laid before the medical referee who thus will be aware of the questions at issue in the case before him. It is, however, no doubt intended that he should give a decision so far as possible his own after forming an independent opinion free from bias and from the influence of others. If it had been intended that a medical man should

or might be present on behalf of the employer or of the workman, or of both, the Home Office authorities would have said so in plain terms. This they have not done and it seems a little doubtful whether the language used should be construed so as to bear such a meaning. Perhaps it may give to the medical referee discretion to have present a medical practitioner or practitioners and to hear what they may have to say on either side, but it must be remembered that the Act is designed for the benefit of the working man and is not intended to favour the longest purse. The position of a workman when not a member of an organisation capable of finding funds to pay his medical adviser might be prejudiced, or might be thought to be prejudiced, if a medical man appeared on behalf of the employer before the medical referee and if at the same time the workman was not similarly supported.

Poisonous Metallic Carbonyls.

A VERY interesting reaction discovered by Dr. LUDWIG MOND is that which takes place between carbon monoxide and nickel or iron. In either case a volatile compound is formed termed respectively nickel or iron carbonyl. The reaction is utilised in the recovery of metallic nickel from its ore, the carbonyl formed decomposing on heating to 150° C. into nickel and carbon monoxide. In the commercial production of nickel in this way some cases of fatal poisoning amongst the workpeople have occurred owing to the escape of the nickel-carbonyl gas. The symptoms are giddiness, dyspnœa, and vomiting, these passing off as soon as the sufferers are brought into fresh air. After from 12 to 36 hours, however, dyspnœa returns, cyanosis appears, and the temperature shows a rise. Cough with more or less blood-stained sputum eventually appears. The pulse-rate increases but not in proportion to that of respiration. Delirium frequently occurs and death in the fatal cases takes place between the fourth and eleventh days. The chief changes found post mortem are hæmorrhages in the lungs, œdema of the lungs, and hæmorrhages in the white matter of the brain. The question as to what constituent of nickel carbonyl is responsible for the toxic effects has been studied by several observers and more recently by Mr. H. W. ARMIT in the Lister Institute of Preventive Medicine, an account of his work appearing in the July number of the *Journal of Hygiene*. It is conceivable that the carbon monoxide of the nickel compound is wholly or partly responsible for the symptoms or that nickel carbonyl is absorbed as such and acts toxically, or that the nickel of the compound produces the symptoms. As an alternative view may be considered the possibility of nickel carbonyl being absorbed as such, the nickel being set free later, acting toxically in the tissues. Mr. ARMIT shows that carbon monoxide is not the toxic agent because firstly in fatal poisoning from minimal doses the actual quantity employed is insufficient when combined with the hæmoglobin to produce more than 5 per cent. of saturation with carbon monoxide and this amount is harmless. Dr. JOHN S. HALDANE has shown that in connexion with mine-gas poisoning with less than 0·1 per cent. of carbon monoxide in the air the blood does not become more than 50 per cent. saturated, so that even a prolonged exposure does not cause a complete helplessness. With 0·2 per cent. the blood will become about 67 per cent. saturated and complete helplessness, with loss of consciousness, would doubtless occur. This percentage would, of course, in the prolonged exposure finally cause death. The second argument which Mr. ARMIT gives against the theory of pure carbon monoxide poisoning is that the blood of an animal saturated to the extent of 32 per cent. with carbon monoxide loses carbon monoxide during subsequent poisoning by nickel carbonyl. Thirdly, iron carbonyl is, he says, less toxic than nickel carbonyl, although it contains more carbon monoxide. It would thus appear that the toxic effect of nickel carbonyl is not produced by the carbon monoxide present; and, further, when the quantity of nickel carbonyl vapour inhaled is only just sufficient to kill, the total available amount of carbon monoxide is insufficient to influence the course of poisoning. The next point obviously to determine was whether nickel carbonyl in contact with the fluids and tissues of the body gives rise to a toxic product of decomposition, and the investigation of this part of the problem led to very interesting results. To begin with, nickel carbonyl in the presence of air and moisture decomposes and a deposit forms which is due to the dissociation of the compound and the formation of a hydrate or carbonate of nickel. Experiment demonstrated the fact that nickel carbonyl is more soluble in blood serum than in water, and its solubility in blood itself appeared to be the same. At the same time, however, there is dissociation of the nickel carbonyl, the product of dissociation proving also to be more soluble in serum than in water. Bearing in mind the influence of serum in keeping metallic precipitates in colloidal solution it is not improbable that the dissociation product exists in serum in colloidal form. The conclusion is thus reached that first of all the poisonous properties of nickel carbonyl do not depend, as was at first supposed, on the carbon monoxide of the compound but on the nickel, and that most probably this metal is deposited as a slightly soluble compound in a very fine state of subdivision over the immense area of the respiratory surface. It would be interesting to know whether iron carbonyl gives rise in the same circumstances to a similar dissociation product which, if it be physically similar to the nickel product—that is to say, in a fine state of subdivision or in a colloidal condition—might be expected to exhibit some analogy in regard to toxic effects. Iron carbonyl, however, is reported to be less toxic than nickel carbonyl, so that it may be assumed that the former either does not give rise to a dissociation product, or that, if it does, this product does not act as a colloidal or mechanical poison.

Child Labour and Public Health.

THERE are many probably of the present generation to whom "The Song of the Shirt" constitutes a reminiscence of the reading of their early days and was even then looked upon as telling of an evil condition of things belonging to a past age of society, one which modern prosperity and modern hygienic development had rendered impossible of repetition. To such perhaps the recent exhibition of sweated industries may have been something of a revelation. It seems barely credible that in these days of sanitary inspectors and health

legislation, together with a marked increase in the general standard of living throughout the community, there should still exist a class of workers ground down by abject poverty and the greed of middlemen, living on a pittance scarcely adequate to maintain life, and working to earn this miserable wage for 14 or 16 hours a day with hardly an interval even for meals. That white slavery of this kind does exist among us is known but too well to those who work among the poorest classes in the East-end of London and a little book recently written by Mrs. ARCHIBALD MACKIRDY [1] gives a simple and unadorned account of the actual sufferings of some among them. It is beyond our province to deal with the social conditions which render it possible for such sweating to flourish as is here revealed—waistcoats made at 7*s.* 6*d.* a dozen, artificial violets at 1½*d.* a gross, and other work at similar rates, allowing a skilful worker to earn by unending toil some 6*s.* or 7*s.* a week. Nor can we discuss the remedies proposed, of which the one most hopefully regarded by the author is the fixing of a minimum wage for every industry, a plan already adopted with some success in that continent of social experiments, Australia. It is with problems of health that we have to deal and the sweating evil leads beyond question to serious violations of sanitary law.

The two main problems which strike the reader of Mrs. MACKIRDY'S book are the injury to the health of children by continuous work in the intervals between their school attendances and the dangers of spreading infectious diseases owing to the insanitary conditions under which much homework is carried out. How can we wonder at the miserable physique of many of our town dwellers when we find that children directly they come home from school are set down to some drudgery in the fœtid atmosphere of a crowded room, making paper boxes for sweets or crowns of flowers for candidates for confirmation, in order to help their mothers to earn the starvation wages by which they are barely kept alive? Often, indeed, they return home to find not only no rest but no food—to beg in vain for a crust of bread and then to go back again to school to have their starved brain-cells worried with more attempts at learning without the needed pabulum to maintain their activities. Nor is it only homework of this nature that is the lot of too many of the children in our elementary schools. Many act as errand boys and girls in their spare hours and are worn out with tramping the streets, often with heavy parcels to carry, during the time when they should be recruiting their energies by rest or play. To get up before daylight and to scrub an indefinite number of doorsteps before going to school is not a process conducive to health, and when we learn that this fate may befall a child of seven or eight years and realise the actual physical labour involved in carrying round the necessary implements and lifting buckets of water in the course of the operations we find it difficult to exult very loudly over the civilisation of the present age.

But there is another danger, that of the transmission of infectious disease by means of the articles manufactured by the sweated worker, which needs to be brought home to the other classes of society. In the crowded dens in which the workers live infectious diseases when they once break out must find a fertile soil. The overworked victims can offer little resistance to any morbid influence. Without food, without rest, without ventilation, they afford every essential condition for easy infection. And the materials on which they work are often well suited to convey contagion. The makers of cheap clothes habitually use the material which they make up for their own bedding. In one case quoted in the book before us a child with measles was lying covered with the stuff brought from the factory ready to be made into garments for others. In another instance the mother was lying on the bed with a child aged eight years who had "open tubercular wounds discharging," while the stench in the room was such that the visitor could scarcely endure to enter. All the other children were also suffering from tuberculosis. It is impossible to tell in what infection may lurk, for the proceeds of sweated labour are not sold only to the poor; they find their way into the houses of the rich. The ready-made garment, the neat card of hooks and eyes, the dainty paper box, the delicate artificial flowers, all alike are liable to bear the taint of their origin and to scatter seeds of disease. Truly—

> . . . . . "medio de fonte leporum
> Surgit amari aliquid quod in ipsis floribus angat."

Is there actually no remedy for this state of things or is it merely that our politicians are busy with more showy legislation and our social reformers are engaged in the pursuit of visionary Utopias? One fact at least is clear, and that is that the aliens who flock to our hospitable shores are the worst offenders in the conduct of sweated industries. The alien who starts as a sweated slave contrives in time to save a few shillings and starts himself to sweat others whom he finds ready to his hand. Parasites upon our community, these alien sweaters displace our own workers and drive ever downwards the price paid for home work. Yet little is done to protect our people against the invasion that is constantly in progress, and what little is done in a lucid moment by one Government is undone in a fit of sentimentalism by the next. The evil has been pointed out over and over again, yet it is still rampant in all our large towns and the misery which it causes is apparently increasing. If modern society—not only the society of the rich who too often care little for those beneath them, but also the trade union society which thinks only of its own members and the shop-keeping society a section of which grows rich on the proceeds of sweated labour—is too selfish to alter this system of slavery from moral motives, yet when the danger which it runs from the disease bred in the sweater's dens is made clear perhaps we may hope that self-interest may be sufficiently enlightened to insist on the removal of such plague spots from our midst.

[1] Baby Toilers. By Olive Christian Malvery (Mrs. Archibald Mackirdy), author of "The Soul Market." London: Hutchinson and Co. 1907. Price 2*s.* 6*d.*

OPENING OF AN ISOLATION HOSPITAL.—On Sept. 18th Colonel H. Lewis, the chairman of the Glamorganshire sanitary committee, formally opened, in the presence of a large gathering, a new isolation hospital which has been erected at Blackmill for the districts of Ogmore, Garw, and and Gilfach. The building, which is situated about a mile from the village, has been built at a cost of £7211, exclusive of £600 which have been spent for furnishing. The institution will provide accommodation for 12 patients.

Annotations.

"Ne quid nimis."

THE ANARCHICO-REGICIDE: HIS MEGALOMANIA.

"LA Monomanie Vaniteuse" or "Ambitieuse" of the older school of French alienists has now (writes an Italian contributor) been replaced by the term "Megalomania," of which, perhaps, the most typical examples are provided by Italy. A recent visit of Dr. Giuseppe Dominione to the great Manicomio Giudiziario of Montelupo in Tuscany enables that legal expert to give several illustrations in point. In a series of brilliant articles contributed to the Milanese *Secolo* he invites the medical readers to a "march past" of the criminally insane, beginning with Giovanni Passanante, the "cuoco-filosofo" (philosopher-cook) of Salerno who, in the November of 1878, attempted the life of King Humbert. His Majesty had been some ten months on the throne and in company with Queen Margherita, his little son the Prince of Naples, and his Prime Minister, Benedetto Cairoli, was making a royal progress through the capital of the ex-kingdom of the Two Sicilies when suddenly from among the cheering crowd a young man leaped on the carriage and resting one foot on the step dealt a blow at the King with a stiletto, which missed its object but penetrated the thigh of Cairoli. The wound was not fatal and both the King and Cairoli exerted themselves to save the frantic aggressor from the mob which would have given him short shrift. He was instead conducted under a strong escort to prison, whence after the usual delays he was removed to solitary confinement and thereafter to penal servitude in the "ergastolo" of Portoferraio (Island of Elba). Ten years of this life developed such signs of insanity that he was transferred to the Manicomio Giudiziario of Montelupo, where Dr. Dominione the other day found him a shrivelled old man of 57, with snow-white hair and face intersected like a map with lines of "longitude and latitude." So enfeebled that he could stand only with the aid of a stick, the "agile tiger" of 1878 responded to questions in a tremulous, scarce audible voice, hovering always round his *idée fixe* that in that year he was to be "the greatest of men," diffusing from the pedestal of his regicidal act theories that were to rehabilitate humanity. All throughout his 29 years of confinement, solitary or penal, he employed himself at every available hour in writing out his schemes for regenerating his fellow man, supplementing his manuscript with "illustrations," some of them modelled in bread or chalk or whatever material came to hand—manuscripts and illustrations alike deposited in the museum of Montelupo for the benefit of the psycholcgical student. Among his last words to Dr. Dominione were, "I want to speak to the delegato (the sub-sheriff); I must descend the stairs ....," till cajoled by Dr. Codeluppi, the director of the Manicomio, he tottered back to the corner of his cell and threw himself sighing, if not sobbing, on his mattress. "He cannot hold out long," was whispered to Dr. Dominione as he took his leave; "after the pneumonia from which he made a poor recovery some months ago, he is declining fast." From this typical, pathetic figure of the "megalomaniac" Dr. Dominione was conducted by the director to several others, all presenting dramatically interesting traits, till they paused before the cell of Pietro Acciarito. This man—he was a youth then—was convicted of the second of the three attempts made on the life of "Humbert the Good." During the race week of the Italian Derby in April, 1897, he had ensconced himself behind a hedge to waylay the King as His Majesty was driving from Rome along the Via Appia Nuova to the grand stand, but before he could reach the carriage he was collared and arrested. Put on his trial he was passed from one prison to another, the last being the Manicomio Giudiziario at Montelupo. His mental symptoms more than justified the transfer, as Dr. Dominione discovered after a brief interview with him. The heavy bolts of the cell door having been withdrawn a furious voice demanded: "Signor Direttore, questa famosa carta, questa penna, quest' inchiostro, quand' è che me li date?" (Mr. Director, this much-talked of paper, this pen, this ink, when are you to give me them?) "Keep quiet, Pietro," was the answer; "to-morrow." The would-be regicide was a fine specimen of a young man, glossy black hair and beard forming a frame to his handsome features. "This paper," insisted Acciarito, getting more and more furious. "I will let you have it, don't doubt it," replied the director, who, turning to the visitor, remarked: "He worries over this. The sheets I give him serve only for a hundredth or thousandth protest on his part." He, too, was a would-be regenerator of society, beginning, as his brethren of the same apostolate always try to begin, by taking the life of the most conspicuous of his compatriots. Foiled in his attempt, the self-flattery of the megalomaniac sustains him even in his cell and perhaps explains his yet vigorous physique which will stand him in longer stead than his poor neighbour, Passanante's. Presently the midday bowl of pasta-soup flavoured with tomatoes was handed to him. This sufficed to break off the interview, as he retired to the corner of his cell. "His mind," says Dr. Dominione, "has already taken flight like a sparrow from its cage, but his body will make a good fight against the horrors of segregation." Another case, not, however, in Italy, though that of an Italian, may put the finishing touch to Dr. Dominione's experiences. In Switzerland Luccheni, who, in the August of 1898, stabbed the Empress of Austria as she was entering the steamboat at Geneva, is as typical a specimen of the megalomaniac as any country has yet produced. When the gratified self-esteem that had borne him elated through the trial and through the first weeks of imprisonment had died down he was found by the director of the prison in a dejected condition, in which he remained till a few questions were cautiously put to him with a view to his disclosing what confederates he might have had in his crime. The creature brightened up immediately. "Oho!" he exclaimed, "the newspapers are still talking of me!" and with these words he seemed to become another man. So pronounced a case of megalomania has, it is understood, made a deep impression on the legal mind, Swiss and Italian, counselling a different mode of procedure. No publicity; no "pomp and circumstance" of a thronged law-court; no "advertisement" of the megalomaniac by newspaper reports and pictorial illustrations. Such in future it is proposed should be the conditions under which the Passanantes, the Acciaritos, the Lucchenis should be brought to trial and carried through it. Megalomania would thus lose one of its chief attractions and incentives for the disordered minds in which it has taken root.

A CANCER EXHIBITION AT BRUSSELS.

A CANCER exhibition will be a feature of the International Surgical Congress which is to be held at Brussels in September, 1908. All objects connected with cancerous disease may be entered for exhibition—namely: (1) macroscopic or microscopic cancer specimens which are either instructive from a surgical standpoint, or of special interest on account of their localisation or method of dissemination; (2) anatomical specimens or drawings illustrating operations for cancer; (3) anatomical preparations of the lymphatic vessels and glands; (4) statistical wall-charts illustrating the frequency of primary cancer and its metastases; (5) statistical charts dealing with the spread of cancer in

different countries, exact plans of so-called cancer "nests" and genealogical trees of families in which cancer has existed for several generations; (6) plans of cancer institutions and hospitals; and (7) proposals as to the means by which a knowledge of the importance of the early diagnosis of cancer may be brought home to the public. Exhibits should be forwarded between August 20th and 31st, 1908, to the general secretary of the International Surgical Society, Professor Dr. Depage, 75, avenue Louise, Brussels, who will take charge of the exhibits, will arrange for their exhibition, and at the close of the congress will return them to their owners. The programme of the congress will be so arranged that exhibitors can demonstrate their specimens to the members during its progress.

INSANITY AND MODERN WAR.

A RECENT issue of the *Allgemeine Zeitschrift für Psychiatrie* (Band LXIV., Heft 2) contains an extremely interesting article on the cases of insanity which occurred amongst the troops of Russia during the recent war between that country and Japan. The author, Dr. Awtokratow, was intrusted with the difficult task of organising the system for segregating and treating these cases and subsequently had charge of the Central Asylum for Insane Soldiers established at Kharbin, so that he was exceptionally well placed for obtaining authoritative information on the subject. In view of the terribly severe strain on the nervous system of the combatants which is involved in warfare under modern conditions it might reasonably have been anticipated that in an army so large as that engaged in the Manchurian campaign a considerable number of cases of mental disease would be likely to occur. At the outset, however, this very obvious probability was not apparently perceived by the Russian military authorities, and no special provision was made for the treatment of the insane who were accordingly detained in the ordinary field hospitals to their own detriment and that of the other patients. When the futility of this method had been sufficiently demonstrated in practice a more rational system was devised, and all cases of mental disease, after a preliminary period of observation in a sort of psychiatric ambulance, were sent to the central asylum at Kharbin. From Dec. 15th, 1904, when this asylum was opened, to March 18th, 1906, when it was closed the total number of patients received was 1349, of whom 275 were officers and 1072 belonged to the rank and file. As regards the relative frequency of the several forms of mental disease the two classes showed some curious differences. Amongst the officers chronic alcoholism was the commonest variety of insanity, occurring in 34·58 per cent. of the total number of cases, the other groups of numerical importance being neurasthenic insanity (11·2 per cent.) and general paralysis (10·4 per cent.). In time of peace, it may be remarked, general paralysis is the most frequent form of disease amongst officers, alcoholism being second on the list. Amongst the rank and file treated at Kharbin these two clinical varieties were comparatively much less common, chronic alcoholism amounting only to 10·86, and general paralysis to 4·3 per cent. of the total. Presumably the heavier responsibilities incumbent on the officers are in some measure accountable for this difference, the greater demand on intellectual activity contributing both to the development and to the detection of such disorders. The predominant form of disease amongst the soldiers was epileptic insanity, no less than 27·9 per cent. of the cases being classed under this head. Alcoholism and confusional insanity (*Verwirrtheit*) came next in importance. As to the cause of this remarkable frequency of the epileptic psychoses, which contrasts with their relative rarity in time of peace, Dr. Awtokratow considers that while it may be due in part to the less discriminating examination of recruits and the lower standard of fitness demanded in a time of emergency, it is also to be attributed in some measure o a direct influence of the stress of battle, for in several instances that came under his observation he ascertained that the patients, though of epileptic stock, had shown no symptoms of the neurosis until at the close of a severe engagement they were seized with convulsions followed by epileptic mania. Traumatic psychoses were relatively rare, amounting to 3·1 per cent. of the insanity of officers and to 3·6 per cent. of that amongst the rank and file. Of course, only those cases in which the mental diseases developed soon after the injury would have come under notice at the Kharbin Hospital. As might be anticipated, in the acute insanities, particularly in neurasthenic and confusional cases, the etiological influence of the war gave a characteristic colour to the mental symptoms, phases of panic terror, with hallucinations of bursting shells, pursuing enemies, putrefying corpses, and so forth, being especially frequent. In the cases of general paralysis described by the writer no such influence appears to have been perceptible in the delusions and hallucinations of the patients. The contrast thus shown between general paralysis and the acute psychoses in regard to the influence of the emotional shock causative of the disease on the affective tone and character of the delirium is in accord with what has been observed under like conditions elsewhere. In Paris, for instance, during the siege and the Commune, and in the disturbed districts of Russia within the last two years, the painful and terrifying experiences which gave a distinctive stamp to the thought and feeling in other forms of insanity did not appreciably modify the mental symptoms of general paralysis.

THE TREATMENT OF TETANUS BY INTRASPINAL INJECTIONS OF MAGNESIUM SULPHATE.

SODIUM and calcium salts have been shown to have stimulating effects on some of the bodily functions. It occurred to Meltzer that the salts of magnesium, another element found plentifully in the tissues, might have an inhibitory action on the same functions. In conjunction with Auer[1] he made a series of experiments on animals which confirmed this view. The subcutaneous injection of magnesium sulphate produced deep and prolonged anæsthesia, with muscular relaxation and abolition of reflexes. Intravenous injection affected the centres in the medulla, depressing the centres for respiration and deglutition, but not affecting the cardiac mechanism. Direct application of the salt to nerve trunks produced irritation but abolished conductivity which was restored on washing the salt away. Intraspinal injection produced surgical anæsthesia in monkeys, which led Meltzer to recommend its use in man. A few abdominal operations have been performed after the intraspinal injection of one cubic centimetre of a 25 per cent. solution of magnesium sulphate for every 20 pounds of body weight. This produced muscular relaxation, anæsthesia, loss of tendon reflexes, and slowing of respiration. In six out of 14 collected cases the patients lost consciousness. In only one case was the cardiac rhythm disturbed. Of untoward effects slowing of the respiration was the most serious and sometimes artificial respiration had to be performed. Washing out of the spinal canal with normal saline solution relieved this symptom. Meltzer suggested the intraspinal injection of magnesium sulphate in tetanus in order to relieve the spasms. A few cases have been reported in which this method was adopted with success. In the *Journal of the American Medical Association* of August 10th Dr. G. C. Robinson has recorded the following case. A boy, aged 11 years, weighing 70 pounds,

[1] American Journal of Physiology, 1905 and 1906.

was admitted into hospital on May 11th, 1907. The temperature was 99·6°F., the pulse was 112, and the respirations were 40. There was no history of any wound. On May 1st the illness began with slight pain in the jaws which soon became stiff. The stiffness increased and on the sixth day he was unable to go to school. The exertion caused profuse sweating and on returning home there was stiffness of the right side, especially of the leg. On the following day, May 8th, general rigidity had set in. On admission he was remarkably rigid. He could not move his head and his jaws were tightly locked. The corners of his mouth were drawn down, his eyes were partly closed, and the risus sardonicus was present. The arms could be moved somewhat but were very stiff. The muscles of the trunk were rigid. The back was arched, the abdomen was board-like, and the legs were held immoveably. Every few minutes, especially when disturbed, he stiffened himself, muscular twitchings occurred, and he moaned and complained of abdominal pain. An attempt was made to administer ethyl chloride but in less than a minute violent spasm of the muscles of respiration and cyanosis were produced. He was revived by artificial respiration. Lumbar puncture was performed and clear cerebro-spinal fluid rose in the manometer to a height of 235 millimetres. Three cubic centimetres of a 25 per cent. solution of magnesium sulphate were injected at 3 P.M. After five minutes the neck was less rigid. In one hour distinct relaxation of the muscles had occurred. At 5.30 P.M. the change was remarkable; the patient was drowsy; his neck could be freely moved; his jaws could be separated about 1·5 centimetres; his abdomen was soft, and his legs and arms were relaxed. He seemed in excellent condition and was comfortable except for a slight headache. At 1 A.M. the rigidity had partially returned and on the morning of the twelfth day, 18 hours after the injection, it had completely returned with the spasms. At 10.30 P.M. lumbar puncture was performed. Only one or two drops of cerebro-spinal fluid, which did not seem to be under any pressure, were obtained; three and a half cubic centimetres of the solution of magnesium sulphate were injected. At 11 P.M. the neck was less rigid and the knees could be slightly flexed. The patient felt drowsy but more comfortable. Relaxation was fairly complete at 12.15 A.M. On the fifteenth day the rigidity gradually returned and at 8.15 P.M. lumbar puncture was performed. The cerebro-spinal fluid rose 160 millimetres in the manometer. About three cubic centimetres were withdrawn and four cubic centimetres of the solution were injected, with the same result as before. The rigidity returned in less degree and after the seventeenth day it gradually diminished. Recovery ensued.

THE RECENT CONFERENCE ON HYGIENE AND TEMPERANCE.

IT will be remembered that on St. George's Day, April 23rd, of the present year advantage was taken of the visit to the mother country of the colonial Premiers to hold a conference for the purpose of obtaining information as to the steps that had already been taken in the outlying parts of the empire to introduce the teaching of hygiene and temperance in educational establishments. The conference was convened by a composite committee consisting of representatives of the hygiene and temperance committee of the medical profession and of the health committee of the British Medical Association. The Earl of Elgin, Secretary for the Colonies, lent his support and Lord Strathcona and Mount Royal, the veteran High Commissioner for Canada, Sir John Gorst, recently Minister for Education, and Sir John Cockburn acted as chairmen. Many prominent colonial citizens were also present and educational authorities of the highest standing, including officially appointed delegates from the various colonies and European states, took an active part in the discussions. Among the members of the medical profession who either contributed papers or took part in the discussions were Sir Lauder Brunton, Sir William Collins, Sir Victor Horsley, Sir Philip S. Jones, Mr. James Cantlie, Dr. Robert Dinnet (Paris), Dr. Foveau de Courmelles (Paris), Mr. A. Pearce Gould, Dr. Helminius-Seppälä (Scandinavia), and Professor G. Sims Woodhead. The proceedings of the conference, which make a valuable contribution to educational literature, have now been issued in the form of a little book of 129 pages[1] at a price which puts it within the reach of everyone who is interested in the subject of education. Mr. Pearce Gould contributes a preface in which incidentally he calls attention to the system initiated by Mr. Chamberlain when Secretary for the Colonies of adapting teaching to the special and peculiar needs of the peoples dwelling in varying climates and exposed to differing epidemic and endemic scourges. "Naked African children," he says, "are now taught how to protect themselves from malaria, not by obedience to cut-and-dried rules, but by the actual observation of the facts which the most advanced science has revealed. If the methods of science are not inappropriate for the aborigines of Africa they cannot be unsuitable for the far more developed children of the villages and towns and even of the slums of Great Britain. ..... We must ask ourselves what are the physical evils our population has most to dread and must teach them all that the most exact science can tell them. ..... We must not be afraid of adopting the *methods* of science in imparting the *lessons* of science." One of the resolutions passed by the conference was to the effect that a medical department should be instituted in the Board of Education and it is signally felicitous that the proceedings of the conference should have been published in book form almost on the eve of the announcement that such a department had been formed.

BIER'S TREATMENT OF TUBERCULOUS SINUSES.

THE treatment of inflammation, acute and chronic, by the induction of passive hyperæmia, introduced by Professor Bier, has not been much used in this country though it has given remarkable results. In the limbs passive congestion is produced by the application of an elastic bandage above the inflammatory area. But on the trunk and head this method is obviously inapplicable. For the treatment of inflammation in the latter localities Professor Bier's assistant, Dr. R. Klapp, has introduced the method of producing hyperæmia by means of glasses attached to small indiarubber bags (like cupping glasses). A partial vacuum is produced by applying the glass with the bag compressed. The part to which the glass is applied projects and becomes of a reddish-blue colour. In the *Boston Medical and Surgical Journal* of June 6th, Dr. J. W. Sever has reported good results from this treatment of tuberculous sinuses due to bone disease which are proverbially slow in healing. Drainage is difficult and requires assistance. By cup suction this indication is fulfilled and, moreover, hyperæmia is produced which stimulates the healing process. Dr. Sever uses small glass cups about 1½ inches in diameter and 2 inches high, the top of which is tapered to fit a rubber tube connected with a rubber bulb. The cup is applied with the bulb compressed, creating a vacuum sufficient to maintain the cup in position. In places where the elastic bandage could be applied, such as the knee, ankle, elbow, or wrist, this is also used. The treatment was carried out for one hour daily. At no time was the suction strong enough to cause pain. Every few minutes the cups were removed to

[1] Teaching of Hygiene and Temperance, being the Proceedings of the Conference on the Teaching of Hygiene and Temperance in the Universities and Schools of the British Empire. London: John Bale, Sons, and Danielsson. Price 2s. net.

clean them and to renew the vacuum but the bandage was not removed during the hour. Some cases did well from the beginning. In others the sinuses closed only to reopen. In two cases the method had to be abandoned on account of the occurrence of considerable hæmorrhage. Histologically there were observed dilatation of the capillaries and lymphatics and increased migration of leucocytes. At first the amount of discharge considerably increased but later it diminished. In some cases, however, the increase persisted and this seemed to impair the patient's general condition so much that the method had to be abandoned. The following are some examples. A boy, aged eight years, had had tuberculosis of the hip and a sinus for five years. After a month's treatment the discharge diminished steadily and the child gained 11 pounds in weight. A boy, aged three years, had tuberculosis of the knee. A plaster apparatus was applied and a compression bandage was used daily for six months. During this time the child walked about as before the onset of the disease. Marked decrease in pain and increase in movement of the joint occurred although in the upper part of the joint an abscess developed which opened spontaneously three months after the onset of the disease. The treatment was continued and a sterile dressing was applied. Then the suction treatment was begun and the sinus closed 16 weeks later. The patient had about 15° of motion in the joint and continued to wear a knee-splint for protection. A boy, aged nine years, had for four years tuberculosis of the spine and for nine months a sinus which followed incision and drainage of a psoas abscess. The discharge was profuse. Suction treatment was begun. In about five weeks the discharge greatly diminished and the general condition much improved. Of 16 cases treated, marked improvement or healing took place in eight. In five there was no local improvement but weight was gained and the colour index of the blood rose.

HUMAN TERATOLOGY.

To Geoffroy Saint-Hilaire science owes the first really systematic study of monstrosities and anatomical malformations and his "Philosophie Anatomique" needs little more than supplementing to maintain the authority which it has hardly lost since its publication in 1818–20. No nationality is exempt from what the older investigators called "Lusus Naturae," the British Isles being not the least prolific in these phenomena. Scotland in the first decade of the sixteenth century anticipated China in the second decade of the nineteenth in producing "twins" like those called from their birthplace "Siamese." Buchanan in the thirteenth book of his "History of Scotland" describes this "monstrum novi generis in Scotia natum" as in the lower part of its body resembling a male child in no wise differing from the normal; but above the umbilicus the trunk and all the members were double, representing both sexes. "Id Rex," he tells us, "diligenter et educandum et erudiendum curavit; ac maxime in musicis, qua in re mirabiliter profecit." Nay (he proceeds), it mastered various languages, while the two bodies betrayed diverse wills and would sometimes fall out with each other. When they agreed they would hold a consultation in the interests of both. This, too, was remarkable, that any hurt to the legs or loins below was felt by both bodies, but when the hurt was inflicted above the pain evoked response in one body only. One of the bodies, he adds, died several days before the other, but the survivor gradually pined away. "Vixit id monstrum," he concludes, "annos XXVIII. Hac de re scribimus eo confidentius quod adhuc supersunt homines honesti complures qui haec viderint." In all this we seem to be reading an account of the "Siamese twins" who died in 1874, aged 63 years. Among contemporary nationalities Italy (as THE LANCET, in its Italian correspondence, has from time to time put in evidence) contributes the most numerous, as well as the most bizarre, specimens to the repertory of teratology. In the day now passing her professional journals record the following: In the Island of Sardinia a peasant woman, after prolonged labour lasting three days, was delivered of a gruesome monstrosity. The head of the child (male), normal in size and oval in contour, is without hair; the face is "framed," so to speak, with long hair; the eyes are in the middle of the forehead; the ears are absolutely wanting. In the middle of the thorax there is a "croce" (cross) formed of hair which covers the backbone, the legs, and the arms, and is at once very long and fine. The hands are wanting. This monstrosity is still alive and the mother, who, it appears, has not yet been allowed to see it, is doing well. From the physical to the moral and intellectual monstrosity, says one of the commentators on the above, there is but a step—how short and how frequently taken let the criminal-lunatic asylums of Italy bear witness.

COÖPERATION FOR ASYLUM NURSES.

DURING the past two months there have been several notes in the *Nursing Times* on the subject of asylum nurses. Attention has been drawn to the fact that there is no coöperative nursing home for these nurses similar to those staffed by nurses who have been trained in general hospitals. We are aware that at least one nursing coöperation has asylum-trained nurses on its staff, but it would appear both in the interests of the public and for the better recognition of fully-qualified asylum nurses that a home should be started which shall only supply properly trained nurses who in return shall have the advantages of working under a coöperative system in the matter of their remuneration. We presume, as a guarantee that the nurses so supplied have attained a certain degree of efficiency, that they will be expected to hold some recognised certificate such as that granted by the Medico-Psychological Association of Great Britain and Ireland. We are informed that Miss Jean Hastie is starting early in October a "Mental Nurses' Coöperation" which, we understand, has the sympathy and support of several consulting physicians in psychological medicine, and if properly managed the scheme should prove a successful one.

DIPHTHERITIC ENDOCARDITIS.

IN THE LANCET of Sept. 21st, p. 826, we published an unusually interesting case of malignant endocarditis of diphtheritic origin recorded by Dr. J. T. C. Nash. The patient was a child between three and four years of age. The clinical history of the case is worthy of notice. The primary disease (diphtheria) was of so slight a nature that it had passed practically unnoticed. It was only on cross-examination of the parents of the child after a post-mortem examination had been made that it was ascertained that he had suffered from ear-ache and a discharge from the ear three weeks previously; sore throat, however, had never been complained of. Doubtless such slight cases, owing to non-recognition, may be the starting-points of severe epidemics. When brought under medical notice the boy had headache, loss of appetite, furred tongue, constipation, and a fugitive erythematous rash. The later symptoms of occasional delirium, restlessness, and tenderness along the back with a continuance of drowsiness, headache, and fever, had suggested the possibility of malignant endocarditis. 36 hours before death retraction of the head and strabismus, and later a petechial rash and slight opisthotonos, led to a suspicion of cerebro-spinal meningitis. At the necropsy on examination of the heart vegetations were found on the aortic and mitral valves. On bacteriological examination a

copious growth of Klebs-Löffler diphtheria bacillus was obtained from the cerebro-spinal fluid and almost a pure culture of the same organism from the material obtained from the heart. The diphtheria bacillus had evidently invaded the central nervous system and embolic plugs laden with diphtheria bacilli would be sufficient to account for the symptoms resembling cerebro-spinal meningitis. As Dr. Nash points out, this case suggests that isolated cases of death preceded by symptoms of cerebro-spinal meningitis should not be attributed to epidemic cerebro-spinal fever without adequate bacteriological proof. We agree with him when he says that to justify the diagnosis of epidemic cerebro-spinal fever it would appear to be quite necessary that the presence of the diplococcus intracellularis of Weichselbaum should be demonstrated. There are many interesting points in connexion with this case that are worthy of careful consideration, and Dr. Nash duly discusses some of them. Dr. W. Bulloch, who conducted the bacteriological examination, remarks that cerebro-spinal symptoms in association with malignant endocarditis have been formerly observed, but he is not aware that the diphtheria bacillus has previously to this instance been demonstrated as the infecting organism.

THE INTERNATIONAL STOMATOLOGICAL ASSOCIATION.

THE inaugural meeting of the International Stomatological Association was held in Paris on August 6th and 7th, immediately after the first French Congress of Stomatology. The officers of the association are as follows: Honorary Presidents: Professor E. S. Talbot (Chicago) and Dr. L. Cruet (Paris). President: Professor J. von Arkovy (Budapest). Vice-Presidents: Professor C. Redard (Geneva), Professor C. Platschick (Milan), Dr. Otto Zigmondy (Vienna), and Dr. Johan Rygge (Christiania). Secretary-General: Dr. H. Allecys (Antwerp). Secretaries: Dr. J. Sim Wallace (London), Dr. J. Breitbach (Dresden), and Dr. D. Nicoleacu (Bucharest). Treasurer: Dr. F. A. Meyer (Amsterdam). In addition there is a representative council consisting of 20 members, each representing a different country. The officers and representatives are each elected for three years. The next meeting of the association will take place at Budapest in August, 1909, immediately after the Sixteenth International Congress of Medicine.

HYGIENE IN PRUSSIAN SCHOOLS.

THE Prussian Minister of Education has recently issued new instructions, in extension of those of July 14th, 1884, relating to the treatment of infectious diseases in schools. If they are observed the school premises will become one of the least likely sources of infection, for as a result of the war waged on microscopic germs cleanliness in the class-rooms and the lavatories and purity in the drinking water will be assured. The number of notifiable diseases has been increased by the inclusion of tuberculosis of the throat and lungs "so long as bacilli are present in the sputum." Teachers and pupils who have any doubt as to their health are earnestly requested to consult a medical man for the purpose of having their sputum examined. All pupils suffering from infectious disease are to be excluded from schools. Isolation is imposed on all who have been in contact with a patient and it extends to public places, playgrounds, and parks, in addition to school premises. When diphtheria breaks out in a school all who have been in contact with the patients are advised to submit themselves for treatment with serum. Daily disinfection of the throat and nose is recommended to persons who have been in contact with cases. In boarding-schools modifications of these rules are introduced, for it is felt that the closing of a boarding-school is an effective method of spreading a disease, whereas the closing of a day-school may be a salutary precaution. Finally, it is recommended that in natural history lessons pupils should be given instruction in the treatment and care of infectious diseases. In the modern reading-books for continuation classes instruction in the simpler matters of hygiene is becoming a prominent characteristic and the children often carry the information to the parents whose aid the school is advised to seek in enforcing the new instructions.

THE ROYAL SOCIETY OF MEDICINE:

THE library of the society will reopen for the use of Fellows and members of sections on Tuesday, Oct. 1st. During the recess a considerable amount of work has been done, shelving for nearly 20,000 additional volumes has been provided, and the libraries of the societies which have combined have been brought together and conveniently arranged. A large portion of the premises hitherto let off to tenants has been taken over for the use of the society and many changes in the internal arrangement of the library have been made.

THE autumn meeting of the South-Eastern division of the Medico-Psychological Association will be held, by the courtesy of Mr. Reginald J. Stilwell, at Moorcroft, Hillingdon, Uxbridge, on Tuesday, Oct. 8th. Communications will be made by Dr. R. H. Cole on a Short Account of Moorcroft, Past and Present, and by Dr. W. H. B. Stoddart on Babinsky's Conception of Hysteria. The members will dine together after the meeting at the Café Monico, Piccadilly-circus, at 7 P.M.

A GENERAL meeting of the Association Internationale d'Urologie will be held on Tuesday, Oct. 8th, at 10 A.M., at the Hospital Necker, Rue de Sèvres, Paris, to decide upon the final constitution of the association. Delegates of the national committees alone have the right to take part in this. Any or all of the members of one committee can be present at the meeting and can take part in the deliberations, but each nation will only have one vote.

THE winter session of lectures and demonstrations at the Hospital for Sick Children, Great Ormond-street, London, will begin on Oct. 10th at 4 P.M., when Dr. A. E. Garrod will give a lecture on Diabetes in Children. On Oct. 17th at the same hour Mr. H. Stansfield Collier will lecture on Experiences of the Opsonic Method in Surgical Cases. Lectures will be given every Thursday at 4 P.M. and are free to all medical practitioners.

THE centenary of the Geological Society was held on Thursday, Sept. 26th, when an address was delivered by Dr. M. Grabham, as the representative of the Royal College of Physicians of London. To-day (Friday) the society visits St. Paul's Cathedral. We hope to publish Dr. Grabham's address in a future issue.

THE first Hunterian lecture of the Hunterian Society will be delivered on Wednesday, Oct. 9th, at 8.30 P.M., by Dr. F. M. Sandwith, Gresham professor of medicine. The subject is Dysentery. The meeting will be held in the London Institution, Finsbury-circus, and all members of the medical profession are invited.

THE annual presidential address will be given by the new President, Mr. R. Lake, F.R.C.S.Eng., before the West London Medico-Chirurgical Society on Oct. 4th at 8.30 P.M. at the West London Hospital, the subject being the Relationship of Disease of the Ear, Nose, and Larynx to General Medicine.

THE winter session of the West London Post-Graduate College will commence on Monday, Oct. 7th.

INSTITUTIONS FOR THE REFORM OF INEBRIATES.[1]

Dr. R. W. Branthwaite's report for 1906 comprises three sections dealing respectively with certified inebriate reformatories, State inebriate reformatories, and retreats. The first section occupies rather more than three-fourths of the volume and is that which presents most interest both to the medical and to the lay reader, as the institutions with which it is concerned, apart altogether from their utility in the treatment of inebriety, are well worth study for the sake of the lessons to be learned from them regarding the conduct of experiments in the care and control of the socially unadaptable classes. The account which Dr. Branthwaite gives of them will be read, moreover, with special attention at the present moment in view of the rather unfavourable criticisms which have been recently directed against the reformatory treatment of police-court drunkards.

During the year under review the number of persons committed to reformatories under the Act was 404, 294 women and 110 men, as against 352 women and 91 men in 1905 and 380 women and 33 men in 1904. The marked decline in the number of females is shown in committals under both sections of the Act, but is relatively larger in the committals under Section I.—that is to say, of women convicted of some form of indictable crime and sentenced to reformatory detention in lieu of, or in addition to, ordinary imprisonment. Dr. Branthwaite points out that this section of the Act has so far been applied chiefly to persons convicted of cruelty to, or neglect of, children. The operation of the Act in cases of this sort appears to be extremely satisfactory. In other indictable offences comparatively little use has been made of the powers conferred on the judicial authority under this section. As to the reasons for the decrease in the number of women sent to inebriate reformatories last year, Dr. Branthwaite suggests that the chief cause is to be found in the rather complicated safeguards with which the legislature in its excessive care for the liberty of the subject has thought it necessary to hedge round the procedure for the committal of a habitual drunkard. This applies particularly to section 2 of the Act which concerns the ordinary drunken recidivist of the police courts: before a committal under this section can be ordered by a court of summary jurisdiction it is necessary to prove the fact of habitual drunkenness, to show that the accused person has been convicted three times within 12 months of the specified offence charged, and to obtain his or her consent to be dealt with summarily. The effect of these restrictions is naturally in many instances to prejudice the magistrate against the novel and tedious method which is so encumbered and to make him prefer the quick and familiar way of sending the culprit to prison, especially if, as is frequently the case, he has but a limited faith in the power of reformatories to reform. The inspector does not say what alterations in this procedure he advocates, but he appears to entertain the opinion that there exists a category of police-court drunkards who cannot be reached by the law as it now stands but who if they could be brought under its operation would probably be curable by detention in a reformatory. Up to the present there has been no opportunity of testing the value of this method in cases not patently hopeless.

Having described very fully in his last annual report the mental and physical characteristics of the so-called "habitual drunkards" Dr. Branthwaite devotes most of his space in the present volume to an account of the machinery which has gradually been brought into existence for dealing with this very motley group of cases. It consists at present of ten certified reformatories and two State reformatories. Of the certified reformatories three were established by local authorities, six by philanthropic bodies and private persons, and one by local authorities in conjunction with private persons. Five of the six institutions in the second group are controlled by a single governing body working under the guidance of the Rev. H. N. Burden, to whose zeal and ability the inspector pays a well-deserved meed of praise. The centralised administration of these five reformatories (which are known collectively as "The National Institutions for Inebriates") has proved of immense value as a means of organising an adequate system of classification; it has rendered it possible to arrange the several reformatories to meet the needs of different types of inmates, so that after a probationary period in a receiving house the inebriates sent from the courts can be distributed according to the character and prospects of each individual case. Completed by the State reformatories for violent and unmanageable inebriates this system is found to work ideally. In the reformatories founded by the local authorities, on the other hand, the attempt to deal with all sorts of cases in a single institution gives much less satisfactory results. Nor is this the only point in which the county council reformatories compare unfavourably with the national institutions; in the matter of economy the latter establishments show an enormous superiority. In the three reformatories built by the local authorities the original cost averages £526 per bed, while in those belonging to the national institutions it amounts only to £112 per bed, and in the latest built, that at East Harling, it is no more than £100 per bed. Even when full allowance is made for the fact that the local authorities have built with a view to the future expansion of their reformatories and have therefore provided an administrative installation largely in excess of their immediate needs, these figures assuredly suggest an unreasonably lavish expenditure, which is the less excusable because, as the report informs us, it was incurred despite the protests of the inspector, who failed to see the necessity of oak panelled board rooms and tesselated pavements in asylums for the detention of criminal inebriates. If the accommodation provided at £112 per bed in the national institutions is adequate for its purpose—and we have Dr. Branthwaite's guarantee that it is so—it is difficult to see what end is served by expending four or five times that sum and so furnishing a valuable argument to the critics of the reformatory system. In respect of the cost of maintenance, again, we learn that the centralised control of the reformatories belonging to the national institutions makes for economy; in these reformatories the expenditure per head is considerably lower, while the profit from the labour of the inmates is considerably higher than in the county reformatories. At Chesterfield, for instance, the most expensive of the reformatories of the former class, the total weekly maintenance expenditure amounts to 12*s*. 6½*d*. per head and the net proceeds from industries to 1*s*. 2½*d*. per head, while the corresponding figures for the Lancashire county reformatory at Langho are respectively 14*s*. 8½*d*. and 8½*d*. per head, and at Farmfield, the reformatory of the London County Council, the cost of maintenance is 18*s*. 6*d*. per head and the net value of the industries is *nil*. These points in Dr. Branthwaite's report are particularly deserving of attention because there has been an evident disposition of late to take the Inebriates Act as a model in other and more extensive schemes for dealing with the defective classes. It will be recalled, for instance, that the Departmental Committee on Vagrancy quoted the provisions of this Act as a precedent for its recommendations that the labour colonies which it advocated should be established and controlled by the county councils and not by the State, and, further, that the establishment of such colonies should not be obligatory on the councils. It is interesting, therefore, to observe that the difficulties in working the Inebriates Act have arisen largely from the very provisions which have thus been singled out for imitation. Local instead of centralised control has prevented proper classification and has increased expense in building and in up-keep, and the merely permissive character of the authority conferred on the county councils to found or to subsidise reformatories has encouraged the majority of the councils to leave the Act severely alone.

The report concerning the State inebriate reformatories mentions that up to March 31st, 1906, 234 inmates had been admitted to these institutions, 71 being males and 163 females. 16 of the total number were committed directly from assizes and quarter sessions under Section 1 of the Act and the remaining 218 were transferred from certified reformatories for refractory and unmanageable conduct. The function of these State institutions is seen from these figures to be mainly that of a rubbish heap for the rest of the reformatory system. In view of the very defective mental condition of the majority of the inmates it is satisfactory to note that the administration of the larger of the reformatories, that at Aylesbury, is entirely under medical control.

With regard to retreats, of which there are 22 in regular

[1] The Report of the Inspector under the Inebriates Acts, 1879 to 1900, for the year 1906.

work, there was an increase in the number of patients admitted last year, 207 having been received "under the Act," and 267 as private patients by agreement with the licensees. It is mentioned that a revised code of rules has been prescribed by the Secretary of State which will permit of greater power being exercised by the central authority over the conditions under which patients are detained in licensed institutions.

In addition to the usual statistical tables the report is illustrated with an interesting series of plans of the certified reformatories of Ackworth, Lewes, and East Harling.

NOTES UPON HEALTH RESORTS.

FIUGGI: AN ITALIAN WATERING PLACE.

AMONG the watering places with which Italy abounds, and of which a description dealing only very summarily with each would form a large volume, there are but few which have achieved more than a local reputation. After mention of Montecatini, Sangemini, Salsomaggiore, San Pelegrino, and perhaps one or two others, the list of those familiarly known outside the country will be complete. This is not due to any lack of appreciation on the part of the Italians of the balneological resources of their peninsula, much less to any comparative inferiority in the waters themselves. On the contrary, the Italians have a strong belief, often amounting to a superstitious faith, in the efficacy of medicinal waters and during the summer are fond of combining with their usual villegiatura a visit to some of the numerous spas which are to be found in almost every part of the country. Many of these springs have a high medicinal value, their waters being constantly prescribed by Italian physicians with as much success as attends hydrotherapeutic treatment anywhere, and not a few of them if exploited with energy and enterprise would doubtless acquire the same wide reputation as is enjoyed, for example, by the best-known springs of France or Germany. Amongst those which will come prominently to the front when Italians awaken to this fact the waters of Fiuggi[1] near Anticola della Campagna[2] will take a high place on account of their efficacy in gouty complaints, and especially in the treatment of renal calculus and gravel. Their celebrity as a remedy in these affections dates at least as far back as the thirteenth century, when they were made personal use of by Pope Boniface VIII. for this purpose. This fame rests entirely on an empiric basis, for, curiously enough, a chemical analysis proves the water to be singularly free from the mineral constituents upon which the therapeutic activity of a water is supposed to depend, the solid ingredients contained in it amounting to only 0·058 gramme per litre, or about four and a half grains in a gallon. Nasini, who has lately made a careful physico-chemical examination of Fiuggi water, thinks that its medicinal powers reside partly in the element vanadium, of which it contains small quantities, but that they are also due in part to the radio-activity which it possesses to a degree unknown in any other drinking water and to the large amount of ozone dissolved in it. As the radio-activity disappears on boiling this property cannot come from radium itself, but must be derived from radium emanations in the contained gases. An examination of the surrounding rocks led to the interesting discovery that the tufa through which the spring issues is strongly radio-active, more so, indeed, than any other material hitherto found in Italy. Its radio-activity is, for instance, ten times as great as that of the "fango" or mud of Battaglia, and is due in part to uranium but also in part to radium.

The presence of ozone in the water, first observed by Cerasoli, is confirmed by Nasini, who, moreover, discovered that there is a large amount of the same gas in the vicinity of the spring, the quantity diminishing as the distance from the latter increases. He attributes its origin partly to the radium emanations in the water but principally to the action of the radio-active rocks by which the atmospheric oxygen is partially transformed into ozone. Nasini attaches much importance to the well-marked catalytic action which he has found Fiuggi water to possess and which he states to be unique in a water. He supposes this action to depend on the presence of vanadium and uranium which in the colloidal state are known to possess powerful oxidising properties even when present in quantities so minute as to be scarcely appreciable by ordinary chemical tests. But whatever may be the truth as regards the *modus operandi* of Fiuggi water, there can be no question as to its remarkable effects in cases of gout and especially of uric acid, gravel, and renal calculus. Professor Marchiafava's able assistant, Dr. Nazari, who has been for the past two seasons medical director of the "Stabilimento" of Fiuggi, reports a large number of cases which have come under his personal notice treated both at Fiuggi with water taken directly from the spring and in his Roman practice with the bottled water. Dr. Nazari believes that Fiuggi water may be regarded as an absolute specific for gout, and he even goes so far as to say that it may be used for diagnostic purposes in cases where the uric acid diathesis is suspected as the underlying cause of any illness. In typical articular gout and in renal calculus the beneficial results obtained both at the springs and at patients' homes are said to be quite surprising. In gout the salutary effects are not usually experienced until some time after a course of the waters, but in calculus the relief is often obtained within a few days after commencing the "cure," the gravel or stones being often voided without any pain.

The benefit frequently obtained from a residence at Fiuggi in other affections—such as diabetes, obesity, anæmia, hepatic troubles, skin complaints, neurasthenia, &c.—Dr. Nazari attributes more to the favourable conditions which prevail there in regard to temperature, radio-activity of the soil, the presence of ozone in the surrounding air, &c., than to the virtues of the waters themselves. The "season" at Fiuggi lasts from May to September and the "cure" for from 15 to 20 days or more. The water is drunk in the morning before breakfast, the patient taking from 10 to 20 glasses containing five ounces each at intervals of about a quarter of an hour. It is desirable at the same time to take gentle exercise in the form of walking or regulated gymnastics to help circulation and to promote the elimination of the water. Further doses should be drunk at meals and during the day. It is well to begin with a moderate amount, say five or six glasses, and gradually to increase it to an average of ten, or in some cases to 15 or even 20, glasses per day. Owing to its energetic diuretic action a large quantity of Fiuggi water may be taken without unpleasant effects if this rule be followed, but sometimes if drunk in excessive amount it gives rise to gastric pains and even to diarrhœa. On account of its purity and high degree of oxygenation it is a very pleasant water to drink and it seems to be equally efficacious whether taken as it issues cool and fresh from the spring or after it has been kept for some time in bottles. But it is doubtless best, whenever practicable, to drink the waters at their source where the climatic and other local conditions probably greatly favour their successful action.

When more comforts, and perhaps luxuries, than now exist have been provided for visitors Fiuggi will be admirably adapted for a summer resort, but the want of first-class hotel accommodation and of the other attractions which people are accustomed to find at a modern watering place must continue to limit its *clientèle* to a small class, and to repel the much larger number who prefer to combine with their pursuit of health a reasonable amount of pleasure and amusement.

[1] Pronounced Few-gee.

[2] Fiuggi is not far from Frosinone on the Rome-Naples line and is reached from Rome in about five hours, two by rail and three by carriage.

ASYLUM REPORTS.

Royal Edinburgh Asylum (Annual Report for 1906).—At the beginning of the year 1906 there were 884 patients on the books of this institution but this number was reduced to 837 on Dec. 31st owing to the opening of Bangour Village. During the year 385 cases were admitted (169 males and 216 females), the total being 47 less than the average of the last five years, the falling-off being in rate-paid cases which were 54 below the average. Dr. T. S. Clouston, the physician-superintendent, states that only 35 out of the 385 patients admitted were in good bodily health, and that as many as 25 died within one month of admission. He further draws attention to the fact, which so many superintendents of asylums have recently noted, that the proportion of old and frail patients is steadily increasing year by year.

The number of general paralytics gave a percentage of 14·2 on the admissions, the number of women so afflicted being in the proportion of 20 to 35 men, which is a very high one and is greater than for any other similar institution in Scotland. Dr. Clouston refers to the work of Dr. W. Ford Robertson and Dr. G. D. McRae on general paralysis. He says that "they have made distinct progress towards a knowledge of its true nature, its definite diagnosis, and, they think, of its treatment with a view to cure. The patients they have had under treatment have, where the disease was in an early stage, shown a wonderful improvement, but the first thing to be done is to be able to diagnose it definitely in its early stages, so that treatment may be applied before the brain is seriously damaged." ..... "Had we a sure means of diagnosing the complaint in its early stages there seems now good scientific reasons for the conclusion that it might then, under specific treatment, be arrested. The great hope for this lies in the fact that the new treatment is on the lines of modern pathological experience, being virtually on the same principles as the mode of treatment now commonly adopted in regard to diphtheria and such diseases as are caused by specific microbes." Passing on to consider other causes of disease in those admitted Dr. Clouston states that "alcohol was, as usual, the commonest of all the outward causes of the disease in those admitted. As a general assigned cause it is put down in our returns at 29·5 per cent. of the male admissions and 16·2 per cent. of the women. Taking that definite form of mental disturbance which we call 'alcoholic insanity' characterised by tremors, or paralysis, or hallucinations, or a marked loss of memory ..... the percentage was 18 among the male admissions and 10·8 among the females." There were 292 patients discharged during the year; of these 88 (33 males and 55 females) were "recovered," 156 (108 males and 48 females) were "relieved," and only 48 (32 males and 16 females) "not improved." A large number of "relieved" and "not improved" patients were transferred to Bangour Village. There were 140 deaths (55 males and 85 females), which gives a percentage of 16·2 on the average number of patients resident. Dr. Clouston states that the large number of cases of general paralysis, together with other fatal nervous diseases, accounts for the present high death-rate. The slight epidemic of colitis which began in 1905 has now died out, the West House drainage system having been repaired at considerable cost. The physician-superintendent goes fully into the question of tuberculosis in the Royal Edinburgh Asylum. He states that the pathologist to the asylum includes in the returns of death sent to the Scottish Board of Lunacy every evidence of unhealed tubercle detected and he adds that in the last Scottish Blue-book there are published the results of this notification for the five years 1901–1905. "The calculations are made, not as formerly, on the total number of deaths, but on the average numbers resident in each institution. I was much exercised when I found in that return that we stood at the top of the list of frequency in regard to our rate-paid patients. We were put down at 3·5 per cent. on the average number of such patients resident. The average of the rates for all other Scottish asylums was 1·58." He then fully discusses the figures and shows how deductions from them may prove fallacious and concludes his remarks by saying that: "(1) there have been no deaths from consumption at Craig House during the 12 years that it has been opened, and several cases who came in with its early symptoms have recovered; (2) the consumption rate among our West House private patients was under the average; (3) the consumption rate among our rate-paid patients at the West House has been over the average. I believe the cause of this has been the overcrowding of our wards of recent years." Dr. Clouston then briefly reviews the history of the institution since it received its Royal Charter exactly a century ago. The account that he gives is an intensely interesting one, showing, as it clearly does, the progress of the institution since its foundation. From the information available in the treasurer's statement it would appear that during the last 90 years about £370,000 have been spent on land and buildings, reconstruction and improvements. The total debt now stands at about £85,900, showing that £284,100 have been already paid off. The income from private patients has gone up from £12,500 to £38,000 per annum. Dr. Clouston further states that "the institution was in the beginning, and has always been, a great public charity, with no private profit accruing to anyone except the official salaries. Of recent years the legacies and subscriptions that have come to it have been accumulated as a charity fund, now amounting to £9600, the interest of which is applied to the reduction of the board of poor patients and the placing of educated rate-paid patients into the private wards, so that their associations may be more congenial and helpful to their recovery. In the year 1886 Mrs. Elizabeth Bevan, a grand-daughter of its founder, left to the institution the sum of about £13,000 for the purpose of supplementing the boards of patients of the educated classes. This legacy was made on the suggestion of Sir Arthur Mitchell. Through it and the charity fund about 80 patients in reduced circumstances year by year have received a benefit which largely conduces to their recovery and their comfort." In discussing the general history of the institution for the year 1906 he states that "we shall enter on a somewhat new phase of our work after this year through the removal of our Edinburgh rate-paid patients to Bangour Village. Hitherto the West House always contained more rate-paid than private patients; now the private patients will form the majority there. We shall from this time be able to admit all patients sent to us at £32 10*s.* and £45 rates of board. We shall then supply a much-felt need for our city and neighbourhood." The report also includes an interesting statement by Dr. P. H. MacLaren, the chairman of the ordinary managers of the Royal Edinburgh Asylum, and contains the usual statistical tables.

HEALTH MATTERS IN THE FEDERATED MALAY STATES.

SUBJOINED is a summary of the statements made in reference to health matters in the reports of the British Residents for the year 1906:—

PERAK.

The acting State surgeon, Mr. S. C. G. Fox, writes of the unsatisfactory way in which births and deaths are registered. The matter is in hand. In respect of births, the returns are inaccurate. In respect of deaths, the cause is wrongly given. To judge of the death returns from fever—5669 deaths out of 12,952—it would be presumed that Perak is a fever-stricken country. Everyone knows it is not; the diagnosis is to blame. One bad feature is that of infantile mortality; 1200 babies died under one year of age.

SELANGOR.

The large influx of Indian labour which took place in 1906 for work upon newly opened rubber estates has greatly enhanced the number of admissions to the district hospitals and has also been instrumental in raising the death-rate. A large number of the admissions were due to malarial fever and bowel complaints, for the most part contracted upon agricultural estates or by the members of working parties in outlying jungle country. Beri-beri has, on the whole, been less prevalent than usual throughout the State, the number of cases treated having been smaller in 1906 than in any period of 12 months during the last six years. Three cases of plague were treated, of which two proved fatal. In no instance was the source of infection discovered. Cholera occurred in seven instances at Port Swettenham, the victims being Indian coolies arriving on ships on which the disease had made its appearance. About 20 cases of small-pox occurred, approximately half of these being traced to infection on board the ship on which the patient had travelled from India. As a precautionary measure all coolies who do not show good vaccination marks on arrival are revaccinated before departure to the estates. Saigon buffalo lymph has been employed throughout the year and has been very satisfactory. If used within a fortnight of its arrival this lymph is quite the best the State surgeon has had any experience of in the East.

NEGRI SEMBILAN.

The number of admissions to Government hospitals during 1906 shows a large increase over that of 1905, the figures being 8567 and 6517 respectively. The number of persons treated as in-patients was 8948, as compared with 6924 in the previous year. The increase is in Tamil coolies from recently opened estates. The case-mortality rose from 7·9 per cent. in 1905 to 10·6 in 1906. When deaths occurring within 48 hours from the time of admission are excluded the figures for case-mortality are: 1905, 5·8; and 1906, 8·5. As the State surgeon

remarks, these facts afford matter for grave reflection. The admissions responsible for the results are of labourers employed in European-owned estates who should be under careful management and supervision, and the diseases from which they suffer are easily recognisable and even preventable. The class of patients sent in consists of cases too serious for treatment on the plantations; they are for the most part very ill and in many cases too ill to admit of successful treatment. The following is a list of the principal diseases treated in the Negri Sembilan Government hospitals, with the mortality resulting therefrom: Malarial fever, number treated, 2545; deaths, 94; death-rate per cent., 3·6. Beri-beri, number treated, 1010; deaths, 75 or 7·4 per cent. Diarrhœa, number treated, 383; deaths, 126, or 33 per cent. Dysentery, number treated, 1252; deaths, 342, or 28 per cent. Pulmonary diseases, number treated, 379; deaths, 113, or 30 per cent.

PAHANG.

The general health was good throughout the year. The number of patients treated in the Government hospitals was 4266, as against 2935 in 1905. The number of out-patients was 12 684, as against 13,610 in 1905. The prevailing diseases were malaria, dysentery, beri-beri, lung complaints, venereal diseases, and diarrhœa in the order named. The numbers of cases treated were 1221, 506, 449, 216, 208, and 127 respectively. Dysentery accounted for 125 deaths, beri-beri 76, lung diseases 51, malaria 35, diarrhœa 32, and venereal diseases 3. All these diseases, except lung diseases, show an increase when compared with the figures for 1905. The State surgeon writes: "The mortality from dysentery and diarrhœa was chiefly among Tamils. The Chinese, who rarely drink unboiled water and are generally more cleanly in their habits, seldom suffer from these diseases to any great extent. For dysentery cases a decoction of fresh mangosteen rind, made while the fruit was in season, was employed at Bentong with some success. Malarial fever shows an increase among all nationalities and the employment by the State of a large number of coolies during the past year has swollen the returns. A disquieting feature is the steady increase in the amount of venereal disease; the numbers shown, moreover, represent but a small proportion of those affected, the majority using local, and generally inefficient, remedies or being treated as out-patients. Beri-beri cases show a steady increase in the numbers admitted, though the percentage of deaths is but 16·92, as compared with 16·70 last year and 16·89 in 1904. Parboiled rice, when procurable, was issued and had, I consider, a beneficial effect."

MEDICINE AND THE LAW.

An Injured Knee as Stock-in-Trade.

AN extraordinary series of frauds appears to have been perpetrated by a man who has been sentenced to four years' penal servitude at the Central Criminal Court under the name of Ben Biten. He at some time sustained a perfectly genuine injury to one of his knees, the effects of which remained (and presumably remain) plainly visible. His method consisted in falling over any rope or open cellar-flap or similar obstruction for which he could claim damages against someone apparently responsible on the ground of negligence. It is not stated that he often had to bring these claims into court, but according to the police evidence he had made them on at least 50 occasions and in many instances had received as compensation sums varying from £15 to £50. His manner of earning a livelihood seems to have been a family secret, for he was discovered through his coming forward to swear that another man who went by the name of Burton was dead. This person had been charged with offences similar to those of Biten and, as a matter of fact, had failed to surrender to his bail and had escaped to America. Biten was Burton's brother and when he appeared in court to say that the latter was dead he was recognised by the medical officer of the Ocean Accident and Guarantee Corporation, which happened to be interested for the third time in defending a claim brought by him. He will now for some time be prevented from victimising his fellow-men, but his manner of doing so was attractively simple and medical men concerned in inquiring into claims such as he was in the habit of putting forward will no doubt make a note of his *modus operandi*.

Medical Evidence in India.

The position of a medical man in India when called as a witness on behalf of the prosecution in a criminal court apparently differs considerably from that of members of his profession in England or is not yet defined sufficiently clearly for all magistrates to be aware of it. In a recent case heard in the special magistrates' court at the Kolar Goldfields the defendant was employed in the mines and was charged with having caused an accident by his negligence. A medical man, one of the surgeons at the Goldfields, was called as a witness with a view to his giving evidence from the nature of the injuries of a coolie as to the probable manner in which they had been received. This he declined to do unless he were first paid the fee to which an expert witness would be entitled. The magistrate took the view that no such fee was payable in such circumstances on the ground that the witness was called in the interests of justice and was bound to give evidence accordingly, and on the witness still refusing to express his opinion he fined him 50 rupees, with the alternative of a week's imprisonment for contempt of court. The fine was paid but it is stated that there will be an appeal to the Madras High Court. It will be interesting to observe the result, for if the magistrate is right the law should be altered in favour of those whose profession renders them liable to be summoned as witnesses in many cases which otherwise would not concern them. If, on the other hand, the magistrate was wrong it seems strange that he should have been ignorant upon a point which might be expected to arise very frequently in courts of criminal jurisdiction. The paying for medical evidence in civil cases is a matter of arrangement between the medical witness and the party calling him.

Medico-Legal Experts in Paris.

In view of the proposals occasionally made that medical assessors and experts should be attached to coroners' and other courts recent events in Paris in a similar connexion may be of interest. A few years ago a special course of practical and theoretical instruction was organised in Paris in order to prepare medical men to serve as medico-legal experts. About a score of candidates have now graduated and received the special diploma. A recent notice from the president of the civil courts bids the magistrates (*juges de paix*) at Paris to select their experts from the qualified list. In an editorial article in *Le Progrès Médical* a protest is made against this practice as being at once detrimental to the interests of justice and to the 450 medical men who have previously been called to give the expert evidence in these courts. It is affirmed that specialist expert testimony is essential—an ophthalmologist for diseases of the eye, a neurologist in nervous affections, and so on; no one human brain can have precise and specialist knowledge in all branches of medicine. The article deplores "the cultivation by the medical faculty of a parasitic flora of certificates and diplomas, sapping the vitality of the ancient trunk of the old-fashioned medical course still offered by the medical schools."

Bodily Illness as a Defence in Actions for Breach of Promise of Marriage.

In a recently reported case (Grover *v.* Zook) the Supreme Court of Washington decided that a breach of promise of marriage on account of tuberculous disease of the *fiancée* was justifiable, even if the matrimonial engagement was entered into with a knowledge of her condition. This American decision carries the legal attitude towards these contracts further than in any previously reported case, and while inflicting hardship upon the individual is doubtless directed towards protecting the public health. In 1886 in the Supreme Court of Pennsylvania a somewhat similar case was decided (Gruig *v.* Lerch). It was allowed to be a valid defence to an action for breach of promise of marriage that the plaintiff was incapable of performing the physical functions of marriage, which disability she had promised to have removed by a surgical operation before marriage, but had failed so to do. The English Court would not accept such defences where a simple contract had been entered into: Mr. Justice Matthew, on one occasion is reported to have said, "Love is not a necessary element in a breach of promise case," and Mr. Justice Vaughan Williams stated that bodily illness, while possibly being a plea against specific performance of the promise, was no defence against damages—for the *fiancée* may, as did Lady Teazle, "like to be a widow." The leading decision in our own records on disease

in the defendant being set up as a defence to an action on a contract to marry is the case of Hall *v.* Wright (1859), where failure of health owing to pulmonary tuberculosis was pleaded in vain as an excuse for the failure of the man to keep his promise to wed. The principles which obtain in such an alleged impossibility or undesirability of fulfilling the matrimonial contract may be analysed from the point of view of the defendant. Since one of the primary objects of matrimony is, in the words of the Book of Common Prayer, "for the procreation of children," such an objective may become impossible or its consummation very dangerous to either party should the defendant's health have been materially affected by a disease. On the other hand, the disease may make matrimony impossible or dangerous to one party only to the contract. In the latter case several alternatives present themselves. The presence of the disease may be known to the defendant at the time when the contract to marry was entered into, it being reasonably thought that the malady was curable; the recent decision cited above shows that logic compels the recognition of the validity of such a defence by courts which would protect the defendant whose disease was only discovered subsequently to the engagement. Should there be no reasonable ground to think that the position will be altered before the marriage ceremony is performed, as, for instance, where a married man proposes to a spinster, the defence of obvious impossibility is futile. There remain the cases where the disease appears subsequently to the time when the contract was entered into; here the defendant may be disabled owing to his own fault, as where he has contracted syphilis or gonorrhœa, or he may have been infected innocently, as with pulmonary tuberculosis. In the former case no defence could be allowed on that account. In the latter case the English courts likewise decline to allow the supervening pathological circumstance to excuse the fulfilment of the promise, for it is held that the performance is not necessarily impossible, and even if it was impossible the plaintiff could still enjoy the social position which would result from the matrimonial alliance. The cautious wooer, if not going so far as to mark his letters "without prejudice," would insert in his proposal a proviso as to the possibility of a change of bodily health in either party, or perhaps would suggest that a satisfactory medical certificate should be produced by each party before the wedding day was named.

The Sale of Poisons.

At the Westminster police court recently Mr. R. A. Robinson, trading as Malden and Co., was summoned under the Pharmacy Act, 1868, for selling strychnine without observing the precautions required by the statute. The poison was supplied by the defendant's firm in the form of tabloids, as in the case described in THE LANCET of Sept. 7th, p. 729, and the prosecution was at the instance of the defendants upon that occasion, who apparently desired to retaliate thus upon the Pharmaceutical Society. Mr. Robinson was recently its President, although he did not hold that office at the time of the prosecution of Boots' Cash Chemists, Limited. Argument took place as to whether the latter as a corporate body could act as common informers, but the magistrate decided to hear the case, and after it had been opened the defendant, who appeared by counsel, entered a plea of guilty and was fined £3, with £2 2*s.* costs upon each of three summonses. These two prosecutions should have a good result if they check the unrestricted sale of dangerous drugs to persons who, though not desiring to make any illegal use of them, would act more wisely in not trifling with them. They should wait to obtain them until their use is ordered by a medical practitioner.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN.—The Chesterfield lectures of this hospital will be resumed at 49, Leicester-square, on Thursday evening, Oct. 3rd, at 6 P.M., when the Chesterfield lecturer, Dr. Morgan Dockrell, will give the opening lecture on "The Present Position of Dermatology." The lectures will be given every Thursday up to March 19th, with the exception of a break at Christmas. After each lecture demonstrations will be given on special cases, followed by clinical instruction up to 8 P.M. on patients presenting themselves in the out-patient department. The lectures are free to medical men on presentation of their cards and to medical students who wish to attend regularly.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 26th, 1829.

STONE BULLET SHOT INTO THE BLADDER.

By WILLIAM LEWIS, *Esq. Surgeon.*

JOHN RODEN, a boy about 11 years of age, (of the Deanery-row,) of a spare habit and pale complexion, received a shot wound on the 5th of November last, while passing a door from behind which a pistol was discharged, loaded with a stone bullet; the shot, after penetrating the door, entered the upper part of the left thigh, and afterwards passed into the bladder. On my first visit, I found a contused wound of a circular shape. I extracted several small pieces of wadding, but was not able, by the most minute examination, to detect the presence of any other foreign body. Syncope supervened, although the hæmorrhage was slight, and no urine passed through the wound at that time. On the following day, there was great external inflammation about the region of the bladder, with excruciating pain whenever an attempt was made to pass the urine; great tenderness upon pressure of the abdomen; pulse quick, hard, and full; tongue dry; great thirst, and many other symptoms of excessive inflammatory action. A free abstraction of blood, both general and local, with oleaginous purgatives, enemas, warm fomentations, and a strict adherence to the antiphlogistic regimen, soon subdued these violent symptoms, and, on the third day, the urine passed freely through the orifice in the thigh, and continued so to do for many weeks; during this time, bloody urine was occasionally passed by the urethra, and frequently a considerable quantity of mucus; there was also a great sympathetic swelling of the glands in the groin. The wound at length became partially healed, and the symptoms of stone in the bladder were very much aggravated. I was particularly anxious at this time to introduce a sound; but neither the parents nor the patient would consent, and at length the wound entirely healed, and the swelling in the groin gradually disappeared. I then succeeded in introducing the sound, and immediately detected some foreign body in the bladder. Soon afterwards I determined upon performing the lateral operation of lithotomy, which I did on the 23rd of June, in the usual manner, with the gorget, and extracted the marble without difficulty, considerably increased in size, from a deposition of calculous matter adhering firmly to it. Not a single unfavourable symptom resulted from the operation, and in a fortnight the boy was enabled to get about. He now enjoys perfect health.

Wolverhampton,
September 15th, 1829.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8075 births and 4149 deaths were registered during the week ending Sept. 21st. The annual rate of mortality, which had been equal to 12·3 per 1000 in each of the two preceding weeks, increased to 13·5 per 1000 in the week under notice. During the first 12 weeks of the current quarter the death-rate has averaged 12·2 per 1000, the rate in London during the same period being 12·0 per 1000. The lowest death-rates in the 76 towns last week were 5·9 in Tottenham, 6·3 in Willesden, 6·6 in Halifax, and 7·0 in Hornsey; the highest rates were 19·1 in Sheffield, 19·4 in Liverpool, 20·6 in Burnley, 22·3 in Warrington, and 23·3 in Bootle. The 4149 deaths in the 76 towns last week were 356 in excess of the number in the preceding week, and included 630 which were referred to the principal epidemic diseases, against numbers increasing from 362 to 485 in the seven preceding weeks; of these 630 deaths 397 resulted from diarrhœa, 90 from whooping-cough, 49 from diphtheria, 43 from measles, 31 from scarlet fever, and 20 from "fever" (principally enteric), but not any from small-pox. No death from any of these

epidemic diseases was registered last week in Reading, Bournemouth, or West Bromwich, and only one in each of 11 other towns; the annual death-rates therefrom, however, ranged upwards to 3·7 in Gateshead, 3·8 in Aston Manor, 3·9 in Stockton-on-Tees, 4·4 in West Ham, 6·2 in Liverpool, 6·3 in Sheffield, and 7·4 in Warrington. The deaths from diarrhœa, which had risen from 39 to 278 in the ten preceding weeks, further increased last week to 397, the highest death-rates from this cause being 3·0 in West Ham and in Stockton-on-Tees, 3·1 in Aston Manor, 3·3 in Devonport, 3·9 in Bootle, 5·2 in Warrington, and 5·4 in Sheffield. The fatal cases of whooping-cough, which had been 76, 80, and 95 in the three preceding weeks, declined to 90 in the week under notice, and caused death-rates ranging upwards to 1·2 in Wigan, 1·4 in Ipswich, in King's Norton, in West Hartlepool, and in Merthyr Tydfil, 1·7 in St. Helens, and 2·0 in Great Yarmouth. The 49 deaths from diphtheria exceeded the number in any previous week of this quarter, and included 15 in London, four in Birmingham, and two in each of eight other towns. The fatal cases of measles, which had declined from 102 to 35 in the five preceding weeks, rose again to 43 in the week under notice; the highest death-rates from this disease were 1·1 in Newcastle-on-Tyne and 1·4 in Cardiff. The 31 deaths from scarlet fever slightly exceeded the number in the previous week and included 13 in London and two each in Liverpool, Birmingham, and Sheffield. The fatal cases of "fever," which had been 18 and 12 in the two preceding weeks, rose again to 20 last week; the greatest proportional mortality from this cause was recorded in Bootle, where the rate was 1·6 per 1000. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital at the end of last week was 4021, against numbers which had increased from 2658 to 3872 in the 19 preceding weeks; the new cases admitted, which had numbered 557, 587, and 574 in the three preceding weeks, rose to 696 in the week under notice, and exceeded the number recorded in any previous week. The deaths in London referred to pneumonia and other diseases of the respiratory system, which had been 116 and 122 in the two preceding weeks, further rose last week to 130, but were 18 below the corrected average number for the corresponding period of the five years 1902–06. The causes of 36, or 0·9 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, and in 50 other of the 76 towns; there were six uncertified deaths in Liverpool, five in Sheffield, four in Birmingham, three in South Shields, two in Preston, and two in Bootle.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 13·6 and 15·3 per 1000 in the two preceding weeks, declined again to 13·3 per 1000 in the week ending Sept. 21st, and was 0·2 per 1000 below the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 7·5 in Leith and 10·5 in Perth to 14·2 in Dundee and 15·2 in Glasgow. The 462 deaths in these towns last week were 70 fewer than the number in the previous week, and included 51 which were referred to the principal epidemic diseases, against 58 and 69 in the two preceding weeks. These 51 deaths were equal to an annual rate of 1·5 per 1000, which was 0·5 per 1000 below the mean rate last week from the principal epidemic diseases in the 76 large English towns; they included 27 which were referred to diarrhœa, ten to whooping-cough, six to "fever," four to measles, three to diphtheria, and one to scarlet fever. The fatal cases of diarrhœa, which had been 22 and 20 in the two preceding weeks, rose again to 27 in the week under notice, and included 21 in Glasgow, two in Dundee, and two in Paisley. The deaths from whooping-cough, which had been 22 and 18 in the two previous weeks, further declined last week to 10, of which four occurred in Dundee, three in Glasgow, and three in Edinburgh. The fatal cases of "fever," which had been 11 and 22 in the two preceding weeks, fell again to six last week, and included three in Glasgow and one each in Dundee, Aberdeen, and Paisley; all these six deaths were stated to be from cerebro-spinal meningitis. Of the four deaths from measles, three occurred in Glasgow; and two of the three deaths from diphtheria were recorded in Dundee. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 57 and 61 in the two preceding weeks, further rose to 67 in the week under notice, and slightly exceeded the number in the corresponding period of last year. The causes of 14, or 3 per cent., of the deaths in these eight towns last week were not certified or not stated; in the 76 English towns the proportion of uncertified deaths did not exceed 0·9 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 20·7 and 17·6 per 1000 in the two previous weeks, rose again to 18·6 per 1000 in the week ending Sept. 21st. During the first 12 weeks of the current quarter the death-rate has averaged 18·7 per 1000, the rate during the same period being 12·0 in London and 12·5 in Edinburgh. The 139 deaths of Dublin residents registered during the week under notice were seven in excess of the number in the previous week, and included 13 which were referred to the principal epidemic diseases, against 12 and 15 in the two preceding weeks; of these, ten resulted from diarrhœa, two from diphtheria, and one from whooping-cough, but not any from small-pox, measles, scarlet fever, or "fever." These 13 deaths were equal to an annual rate of 1·7 per 1000, the death-rate during the same period from the principal epidemic diseases being 1·7 in London and 1·1 in Edinburgh. The deaths from diarrhœa, which had been eight, five, and nine in the three preceding weeks, rose to ten in the week under notice, while the two fatal cases of diphtheria corresponded with the number in the previous week. The 139 deaths from all causes in Dublin last week included 35 of children under one year of age and 35 of persons aged upwards of 60 years; the deaths of infants exceeded the number in the previous week, while those of elderly persons showed a slight decline. Four inquest cases and four deaths from violence were registered during the week; and 57, or 41 per cent., of the deaths occurred in public institutions. The causes of seven, or 5 per cent., of the deaths in Dublin last week were not certified; in London only one uncertified death was registered, while in Edinburgh the proportion was equal to 8·8 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff Surgeons: P. H. M. Star to the *President*, additional, for three months' course at West London Hospital; T. W. Philip to the *Russell*; and W. H. Pope to the *Topaze*. Surgeons: A. R. Thomas to Plymouth Hospital, and A. B. Marsh to the *Ariadne*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant Winfrid K. Beaman, from the seconded list, to be Lieutenant (dated Sept. 1st, 1907).

Lieutenant-Colonel M. Dundon has been appointed to the medical charge of the troops at Winchester. Lieutenant-Colonel J. M. Jones is placed under orders for India. Lieutenant-Colonel J. R. Dodd has been transferred from Dublin to Belfast as administrative medical officer. Lieutenant-Colonel H. N. Thompson has joined at Aldershot for duty at the Cambridge Hospital. Major G. T. Rawnsley has joined the Aldershot Command and been appointed to the medical charge of troops at Longmoor, vice Lieutenant-Colonel R. J. Geddes, D.S.O., transferred to the Military Hospital, Woking.

ARMY MEDICAL RESERVE.

Walter George Hughes Cable to be Lieutenant on probation (dated Sept. 2nd, 1907).

VOLUNTEER CORPS.

Royal Garrison Artillery (*Volunteers*): 1st Suffolk and Harwich: Surgeon-Captain A. Y. Pringle resigns his commission (dated Sept. 1st, 1907). *Rifle:* 1st Volunteer Battalion the Royal Sussex Regiment: Surgeon-Lieutenant E. R. Hunt to be Surgeon-Captain (dated August 3rd, 1907). 6th (Fifeshire) Volunteer Battalion the Black Watch (Royal

Highlanders): Surgeon-Major D. H. Kyle resigns his commission (dated August 5th, 1907).

DEATHS IN THE SERVICES.

Fleet-Surgeon James Thomas William Stenteford Kellard, R.N. (retired), suddenly, at Waterlooville, Hampshire, on Sept. 16th, in his 55th year. He entered the Royal Navy as assistant surgeon in 1876, and became fleet-surgeon in 1897. In November of the same year he retired, and had since then resided at Southsea.

Correspondence.

"Audi alteram partem."

THE MEDICAL REGISTER.

To the Editors of THE LANCET.

SIRS,—May I ask you in the interests of the profession to draw attention once more to the importance of notifying to this office changes of address for insertion in the Medical Register; omission to do this sometimes leads to a temporary removal of the name, with its consequent inconvenience. The Medical Register is the official publication and should not be confused with any of the medical directories which issue circulars annually. I might also add that if the signatures are written clearly and the full names, or at least the full initials, are given, much trouble will be saved.

Yours faithfully,

H. E. ALLEN,
Registrar.

299, Oxford-street, London, W., Sept. 23rd, 1907.

SOME PHYSIOLOGICAL EFFECTS OF HIGH-FREQUENCY CURRENTS IN DISEASE.

To the Editors of THE LANCET.

SIRS,—I am sorry that Dr. J. C. Bowie in his letter in THE LANCET of Sept. 7th, p. 732, should have thought it necessary to attribute to me a desire for approbation. I had believed when writing my last letter that it was truth more than triumph I was seeking. I fear that Dr. Bowie in his reply leaves the matters in dispute between us very much where they were. He continues to state what ought to be, not what he has found to be, the case. I desire criticism of what I have stated to be facts. I had believed that my paper teemed with these, yet no attempt has been made to controvert even one of them by actual experiment.

Dr. Bowie makes much of the question of wattage in the output. I made no objection to this, only saying that wattage, as he interprets it, was not required *as well as* voltage and ampèrage. His wattage theory, however, is absolutely irrelevant to a discussion on my contribution to your columns. I have stated that the dose given has been so and so—400 milliampères or 500 as the case may be. This milliampere meter reading is a *thermic fact*, as I have explained, being measured by a hot wire galvanometer. Dr. Bowie seems to forget, however, that in alternating current phenomena wattage is not got by simply multiplying voltage by ampèrage, as in continuous current; and this is the answer to his argument based on wattage of input and wattage of output. As I have said, we cannot speak of wattage in high-frequency currents in the manner in which he insists on doing. As I have also before stated, it is a current in the meter but a capacity in the body. I have in the records of my experiments given the measure in the meter, refraining from venturing to predict what capacity this may represent in the body. His claim regarding wattage will be perfectly satisfied, however, I understand, if we suppose that what corresponds in the meter to a heat equivalent of 500 milliampères *may* represent a capacity of 16 milliampères in the body. Not only am I ready to grant that this may be so, but I am willing to go even further than this for the sake of ease of calculation and for argument's sake, though, as the lawyers say, without prejudice, and make it five milliampères in the body. This, however, it must be remembered, is *an inference only*, though an interesting one I admit, whilst the figures given in my charts still remain thermic facts which can be tested and measured by anyone. Thus the wattage as an energy affecting the body, according to Dr. Bowie's method of calculating it in connexion with high-frequency currents, becomes 400—namely, 80,000 volts multiplied by 0·005 ampère, though Dr. Bowie has all along been willing to give me 1250 watts. The facts recorded in my charts, however, remain unchanged and my thesis remains practically unchallenged. For 500 milliampères in the meter read five milliampères as the ampèrage capacity in the body; for, say, 400 milliampères in the meter as the quantity running off to zero from the axilla read four milliampères as the actual capacity in ampèrage at the axilla; for 250 milliampères as passing to zero from the foot read 2·5 milliampères as the actual capacity in ampèrage there. What I wish and maintain that I have established remains unaffected—namely, that the fall in the current to zero and the fall of potential from the point of entrance of the current to any part of the body selected for measurement proceed practically *pari passu*. I have endeavoured to explain why it is not absolutely so, as I thought it should be. That more than a small percentage of the current passing through the meter is the ampèrage capacity in the body I feel sure; but this also being a mere inference we need not occupy our time discussing it, since it has no bearing on the question of the validity of my statements regarding certain physical facts observed by me. I am prepared neither to accept nor to reject this hypothesis. I have in my original article purposely made no assertion as to the relation of the current in the meter to the capacity in the body, limiting myself mainly to statements as to what I actually found as facts. Some recent experiments made by me warrant me, however, in believing that the heat equivalent in milliampères of the effective electric energy surging in the body during auto-condensation, when the meter registers 500 milliampères, is to be measured not by units but by hundreds. If Dr. Bowie tries the experiments I have described and does not get the same results then myself and others must repeat the experiments that thus we may get at the truth. If authorities are anathema in Dr. Bowie's eyes he must give us more evidence in support of his own claims as a new authority than his mere *ipse dixit*. Far from invoking authority myself, however, all my investigations were meant for tests of past authorities, as I make plain at the beginning of my paper. Regarding many points Dr. Bowie brings forward no evidence of the correctness of his beliefs. He simply contents himself with repeating them.

If, then, his wattage theory can be made to mean nothing and his potential theory remains unproved, what is left in dispute between us? Only some, I have no doubt interesting, experiments with a vacuum tube for the production of ultra-violet rays. I should very much like to see this apparatus at some future date, but it has nothing to do with my contribution on the physiological effects of high-frequency currents. Since he tells us that he passes through this tube a current of 250 milliampères at a pressure of 30,000 volts, however, it would be interesting to know what the wattage of the input is in order to get an output wattage of 7500, as he calculates wattage in alternating currents.

Dr. Bowie has not explained how he is to get five ampères through the body out of 80 volts. My objection is not to the 400 watts but to the five ampères at a voltage of 80. The question as to the relative physiological effects of a high voltage and a small current as against a comparatively low voltage and a relatively high current would be an interesting investigation, but it has absolutely nothing to do with the original subject of my communication and is, therefore, in no sense a criticism of it. What Dr. Bowie says regarding my failure to attach importance to time, quantity, voltage, &c., is apt to mislead your readers. If my charts are referred to it will be seen that time and quantity are practically always given and my results are based on these data. Where the quantity and time have been omitted it is an unintentional omission. I have full details of all the cases in my notes and can let Dr. Bowie or anyone interested have them.

When Dr. Bowie has had time to test my experiments I shall be glad to hear from him either privately or through the medium of your columns. My facts—not myself—are "on approbation," that is, they are waiting to be probed. What is wanted is real practical criticism. Unless Dr. Bowie is prepared to give this practical criticism a continuance of this correspondence is, in my opinion, useless, wasteful alike of my time and of valuable space in your columns, seeing

that it has now resolved itself into a discussion which can have little interest for your readers.

I am, Sirs, yours faithfully,

Glasgow, Sept. 9th, 1907. SAMUEL SLOAN.

A CASE OF SELF-INDUCED (?) ABORTION.

To the Editors of THE LANCET.

SIRS,—In Dr. A. B. M. Thomson's short paper on the above subject in your issue of Sept. 7th he says, "The question which called for decision was whether this was in reality a case of self-induced abortion. Is it possible for a woman to introduce into her uterus, without causing injury to the vaginal walls or to the os, a straight rigid rod four inches in length?" It may interest him and some of your other readers to hear of a remarkable case in point. Some years ago, I think it was in the "seventies," I had a patient under my care who confessed to me, and I had no reason to doubt her word, that she had brought on abortion on herself thirty-five (35) times! The instrument she used was a bone knitting-needle. She used to squat down and, finding the os, pass the knitting-needle into the uterus. She was so regular in her periods that she knew at once when she had conceived and immediately proceeded to operate; and though on several occasions she had rather severe hæmorrhage, yet, as far as I remember, she was never in any serious danger; a rather remarkable result in those pre-aseptic days.—I am, Sirs, yours faithfully,

Welbeck-street, W., Sept. 19th, 1907. HEYWOOD SMITH.

RESULTS IN APPENDICITIS TREATED BY THE IMMEDIATE AND COMPLETE OPERATION.

To the Editors of THE LANCET.

SIRS,—The controversy whether it is better to operate within the first few hours of the onset of appendicitis or whether it is better to wait until there is some definite call for operation has gone on for many years.

Mr. W. G. Spencer is to be congratulated upon having a consecutive series of 100 cases of appendicitis (published in THE LANCET of Sept. 14th, p. 770) with but seven deaths, or four if we exclude the three cases who had other lesions as well. But if we accept the title of his paper and his concluding paragraph—viz., "that it has been possible to diagnose and to operate on 100 cases of appendicitis, with a loss, when the appendicitis was the sole disease, of only four, a result which removes the various objections that have been raised to the method"—it will be seen that those of us who have an open mind upon this question can derive but little instruction upon this important point. If it is true that the immediate and complete operation is responsible for so low a death-rate as 4 (or 7) per 100 cases, then every right-thinking surgeon should adopt the immediate treatment. But let us look more closely at these 100 cases.

Class 1.—37 cases; no deaths. Admirable. But these are defined as "cases in the interval between the attacks, or early acute and subacute cases." How many of these were "interval" cases is not stated, but it seriously reduces the 100 cases submitted to "immediate" treatment, unless "immediate" only means "as soon as they came under Mr. Spencer's care." No good surgeon in these days expects otherwise than to obtain equally satisfactory figures from this type of case whether they are done immediately or in a week or two. Then "subacute" is a term open to misunderstanding. Does it mean that they were recognised as very mild cases, or were they recovering from acute attacks, and if the latter, how "immediate" was their treatment? Mr. Spencer says, "*some* of these cases would have recovered without operation, *others* would have become rapidly worse had the operation been delayed"; but as he dispensed with drainage in all, he evidently did not think so badly of them.

Class 2.—These are labelled gangrenous and perforating appendicitis and *subacute appendicitis*. 31 cases; four deaths. All will agree that the sooner gangrenous and perforating cases are operated upon the better, but why put subacute cases into this class? How many of these were subacute, and, if so, how early were they operated upon?

Class 3.—Cases of suppurating appendicitis treated by removal of the appendix and drainage. Again comes the question as to how elastic a term is the "immediate" in this paper. I suppose a good many of these cases had an abscess for several days; at any rate, I frequently get cases at the Children's Hospital who are brought up from seven to ten days after the onset of the illness with large localised abscesses. These are opened at once, but it is hardly looked upon in the sense of the "immediate" operation. The removal of the appendix at this stage must certainly add to the danger of the operation, as it risks infection of the peritoneal cavity when the patient's tissues have, after much trouble, walled it off into a position of safety. I know authorities differ on this point but I have never regretted not removing the appendix in opening a localised abscess.

Class 4.—As in Class 3, there is no guide to the time of the various operations, still, as they were suppurating cases, they are hardly likely to have been very early ones.

I am not cavilling at the early operation done within a few hours of the onset of appendicitis, but I do think that this series of 100 cases with four (or seven) deaths is gravely fallacious as a proof of the benefits of early operative treatment when interval cases are included, and when we get no guide in the majority of the cases as to how soon after the onset the operation was performed. Instead of the death-rate being reduced to 4 per 100 as a result of the immediate operation, it must be—well, perhaps Mr. Spencer will give us a more accurately analysed list.

I am, Sirs, yours faithfully,

Upper Wimpole-street, W., Sept. 14th, 1907. JOSEPH CUNNING.

ERYSIPELAS (?) IN A YOUNG CHILD.

To the Editors of THE LANCET.

SIRS,—The following note may be of interest, as I can find but few recorded cases of a similar nature.

The patient was a little girl, aged five years, who was brought to my house about a week ago with a sharply-defined bright-red patch on the right cheek. I told her mother that had it not been for the child's age, when such an affection was very unusual, I should certainly have diagnosed the case as commencing erysipelas. The child's skin was hot and dry, the temperature was 101·4° F., and there was distinct albuminuria. I prescribed a simple febrifuge and asked that I might be informed if there should be any further developments. Two days later I was asked to see the patient at her own home, where I found her presenting all the appearances of a typical case of facial erysipelas. The face was swollen to the extent of being unrecognisable; there was marked œdema of the eyelids; and there was a well-marked line of demarcation between the erysipelatous and the healthy skin.

Since then the case has run an uneventful course, the redness becoming daily less marked and the temperature gradually falling from 102·8° to within a point or two of normal. Treatment has been on the usual lines. There was no history of any injury, there was no affection of the ear or throat, and the child's teeth were in good order. Her mother told me that when I first saw her she had just returned from a country holiday but she could not think of any possible exposure to infection. The drains of the house in which they stayed were, so far as she could tell, satisfactory.

I shall be glad if any of your readers who have met with similar cases at such an early age will favour me with a few facts concerning them, and with suggestions as to their probable cause.—I am, Sirs, yours faithfully,

T. R. HENDERSON, M.B., C.M. Edin.

Bedford Hill, Balham, S.W., Sept. 15th, 1907.

ARTHROPATHY IN RÖTHELN.

To the Editors of THE LANCET.

SIRS,—While the nature of rheumatoid arthritis is under discussion I should like to place on record the occurrence of an arthropathy during the course of rötheln. The patient was a young man, aged 24 years, who, after a few days of sore-throat, stiff neck, malaise, and moderate fever, developed a rash having the distribution and appearance of German measles and accompanied by an enlargement of superficial glands, notably those of the neck. Before the exanthem had faded the patient began to complain of stiffness and tenderness in the knees and ankles, and soon all the interphalangeal joints of the fingers presented the spindle-like swelling commonly seen in rheumatoid arthritis. There was no exacerbation of temperature and neither cardiac nor other complication, and a fortnight from the appearance of the

rash all the symptoms were subsiding and in the six months which have elapsed only an occasional transient stiffness in the fingers reminds the patient of the attack.

I am, Sirs, yours faithfully,

DAVID A. ALEXANDER, M.B. Vict.

Clifton, Bristol, Sept. 19th, 1907.

METROPOLITAN STREET AMBULANCES.

To the Editors of THE LANCET.

SIRS,—After deliberation for over three years from the date (1904) of the influential deputation from the medical profession and others interested in promoting an efficient ambulance service for the streets and public places of London which waited upon its police committee, the City of London has succeeded in solving the difficulties connected with its own area and has established a service which, after over four months' trial, is universally pronounced to be a success. It is to be hoped that the metropolitan area will not be long in following suit in adequately dealing with the greatly increasing dangers of its streets. In addition to meeting its own requirements the City of London may be regarded as having provided an excellent object lesson for street ambulance administration.

Permit me now that this subject is still pressing to point to some circumstances which appear to have narrowed down almost to a multiplication sum—the requirements of an ambulance service for the streets as applicable to much larger areas of population than the City. Most prominent and essential amongst these conditions is the combination which the City of London has been able to organise—viz., police administration, first aid, telephonic communication, and hospitals, in addition to the most recent type of motor-ambulance. The public has yet to learn and appreciate more thoroughly than it does that the vehicle or conveyance used is only a single factor amongst several which make up an efficient ambulance service for street accident purposes. Without such a "combine," irrespective of the mere number of ambulances available, experience shows that it is impossible to construct an emergency service where efficiency and cost have to be considered.

In the next place the City service has demonstrated (1) that a single motor-ambulance can cover for street ambulance purposes a much larger area than was previously supposed or than any single hospital in London, however large, requires, and (2) that it is capable of doing its work with a very small staff more rapidly and efficiently during the busiest part of the day than any number of cabs, hand-wheeled litters, and less suitable nondescript vehicles. This fact alone has an important bearing on cost when the number of motor-ambulances required for working a much larger district such as the accident area of the metropolis has to be computed. (3) In the City service the weight of expense in maintaining ambulances for public use in cases of accident requiring them does not fall upon the hospitals. Where a hospital, as, for instance, St. Bartholomew's, in the City service is selected, and consents to be an ambulance station having a definite area, the expense is limited to the institution finding standing room for the vehicle. These are, I believe, some points which serve to illustrate a principle to which prominence should be given in meeting the difficulties connected with the ambulancing of the metropolis generally.

I am, Sirs, yours faithfully,

REGINALD HARRISON,
President of the Metropolitan Street Ambulance Association.

Lower Berkeley-street, W., Sept. 20th, 1907.

MUCOUS COLITIS.

To the Editors of THE LANCET.

SIRS,—I am interested in the paper on Mucous Colitis and your editorial article thereon in THE LANCET of Sept. 21st, as a short time ago I had a letter from a patient who suffered very severely from pseudo-membranous colitis and on whom Mr. Skene Keith operated in June, 1894, by performing right inguinal colotomy and double oöphorectomy. This, I believe, was the first operation of the kind performed in the country and was prior to that performed by Mr. C. H. Golding-Bird on a case under the care of Dr. W. Hale White, to which you refer. In THE LANCET of March 2nd, 1895, p. 537, Dr. Hale White remarked, "It has been suggested that in a very intractable case it might be justifiable to open the colon high up." In the issue of the following week Mr. Keith announced that he had already performed such an operation with complete success in June, 1894. I fully published this case in the *Medical Press and Circular* of July 29th, 1896, and the present condition of the patient is, "Now I feel quite well again and very comfortable. I am perfectly well in regard to the old trouble; no hæmorrhage, and the bowels regular every day. I am a surprise to many people who knew me as I used to be in days gone by."

I am, Sirs, yours faithfully,

J. CHRISTIAN SIMPSON, M.D. Edin.

Cambridge, Sept. 21st, 1907.

To the Editors of THE LANCET.

SIRS,—I think Dr. E. H. Harrisson makes a very important observation when he attributes the different characters of the mucus found in the stools to the period of time during which it has been retained in the bowel rather than to any difference in the colitis. No useful purpose is served by drawing a distinction between the different forms in which the mucus may be found, and such terms as membranous as opposed to mucous colitis are valueless. I am sorry to see, however, that in discussing the etiology he falls back upon the old view that mucous colitis is a primary neurosis. There is nothing but negative evidence to support this view, and the history of medical science has repeatedly proved such evidence to be valueless. As medical knowledge advances the tendency is to eliminate such vague causes for diseased conditions as neurosis. Where are all the "nervous dyspepsias" and "rectal neuralgias" which were so common in the older text books?

When no lesion is found in a case of mucous colitis is it not possible that we cannot find it, or that we are unable to recognise it when found, rather than that it does not exist? It is certain that a lesion of the bowel must have been present in many of Dr. Harrisson's cases, for in nearly half of them there was blood in the stools, and although piles may have accounted for this in some cases it can hardly have done so in all. Now blood in the stools is certain evidence of a lesion somewhere in the colon or rectum, since bleeding cannot occur from normal mucous membrane except in such grave constitutional conditions as hæmophilia and scurvy. Again, in over half the cases it is noted that there was tenderness over some portion of the colon, and tenderness, especially local tenderness, is evidence of a lesion of some kind in the bowel or neighbouring peritoneum.

One argument frequently used in favour of the neurotic theory is the preponderance of females among the collected cases. I think, however, this can be differently accounted for. It is frequently the secondary neurotic symptoms which first draw attention to the colitis, and women are more liable to become neurotic and to consult a doctor on account of vague symptoms than men. The fact that the cases seen in men are generally of a severe type also supports this explanation. The greater tendency to constipation and the liability to uterine disorders in women is also an important factor. I think it is much better and safer to look upon the condition called mucous colitis as a symptom rather than a disease and to direct our treatment towards finding and eradicating the cause. Even in the present state of our knowledge a definite lesion is often found which can be dealt with by surgical or other means.

I am, Sirs, yours faithfully.

P. LOCKHART MUMMERY.

Cavendish-place, W., Sept. 24th, 1907.

ETHER INHALATION IN PULMONARY TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—I am sorry that I did not make my suggestion in my letter to THE LANCET of Sept. 14th sufficiently clear and thereby I misled Dr. J. Blumfeld as to my views. I fully agree that anæsthesia for operations upon phthisical subjects is not desirable, but I was not referring to *operations* but medical treatment of phthisis. Nor did I intend to argue that since cases of tuberculous peritonitis have been benefited by abdominal section performed under ether, that that benefit was due to the ether. I simply suggested it was a possibility. Dr. Blumfeld says: "The latter drug (that is ether) is much more likely to increase the activity of an active, or arouse that of a latent,

tuberculous focus in the lungs." Quite so; my idea is that every tubercle, active or latent, should be attacked or aroused and destroyed. That is why I suggested a prolongation of the ether saturation (if I may use the term) of the body in order that latent tubercle in hard structures may be reached. I did not suppose that it would be necessary to keep a tubercle long in direct contact with ether before it would be destroyed. Dr. Blumfeld alludes to "several instances where pulmonary tuberculosis has been seriously aggravated after operations performed under ether." It is only reasonable to suppose that if we are going to wake up latent tubercle in order to destroy it, that that tubercle is not going to take its execution lying down. Desperate diseases require desperate remedies, but even those remedies can be used with that consideration suggested in my previous letter.

I am, Sirs, yours faithfully,

Sept. 23rd, 1907. ROBT. HUGH HODGSON.

PREVALENCE OF BILHARZIOSIS IN THE ZAMBESI BASIN.

To the Editors of THE LANCET.

SIRS,—Since the discovery made by Bilharz Egypt has always been considered as the favourite hunting-ground of Schistosomum hæmatobium. After the same distome had been discovered by Harley at the Cape it could be presumed that this malady, which raged at the two extreme ends of Africa, would also exist in all the remaining parts of the continent. As a matter of fact, it has been met with in a large number of countries but always appeared very much less frequent than was the case with the Egyptians, as pointed out as the result of investigations made by Bilharz, Greisinger, and Sonsino. According to these writers, in that country half the inhabitants are affected with this disease, which has been confirmed by the congress recently at Cairo (1902).

As regards the Zambesi basin it has been ascertained to exist there but in a vague manner. R. Blanchard remarks: "Throughout the Zambesi basin the inhabitants suffer from hæmaturia and they ascribe the cause of this disease to worms which they declare can be seen from time to time leaving them through the urethra." Brandt remarks: "This complaint is found along the lower course of the Zambesi" (1900). Patrick Manson and other writers who wrote after them did not refer to the prevalence of this malady in the Zambesi basin. I have ascertained the existence of this complaint along the lower as well as the upper reaches of this river, the characteristic eggs of bilharziosis being found in preparations of hæmaturic urine. But what appears to me the most interesting point is the extraordinary frequency of cases, at least along the lower reaches of the river. Whilst in other parts of Africa cases are stated to be of small frequency or brought into the country from elsewhere, we have here before us a veritable hotbed of endemic disease.

Notwithstanding the absence of statistical data, which cannot be supplied in those parts, I believe that bilharziosis must be in the Zambesi region of a frequency equal to that which has been ascertained in Egypt. Chinde, Sena, and Tete, which are the principal posts on the banks of this river, are infested with this disease, which particularly attacks males and most of all children. Europeans, thanks to their superior hygiene, enjoy immunity from it. I have observed a considerable number of cases but I have only been able to follow nine of them (in all cases children). I have only observed urinary bilharziosis but it is more than probable that in addition the other known localisations of the disease could be discovered. I have used the Wortabel treatment with spirit of turpentine, to which I added thymol. The two medicaments were administered separately and successively Out of six cases thus treated I obtained improvement as far as pain was concerned in four cases.

I am, Sirs, yours faithfully,

FRANCISCO MORAES MANCHEGO, M.D. Lisbon.

Campo Maior, Portugal, Sept. 14th, 1907.

THE PREVENTION OF TUBERCULOSIS.—At the meeting of the Newport (Mon.) board of guardians, held on Sept. 14th, it was decided to fit up a detached house near the workhouse for the treatment of cases of pulmonary tuberculosis.

THE PUBLIC AND PRIVATE SLAUGHTER-HOUSES OF DUBLIN.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

PART II.[1]

The Private Slaughter-houses.

THERE is in Dublin an organisation called the Dublin Victuallers' Association, composed in the main of master butchers. Two of its members are on the Dublin town council and one of them, Mr. William Field, is a Member of Parliament. It is undoubtedly an influential body and I appealed to it for facilities to visit private slaughter-houses. My request met with a courteous and favourable reply and some members of the committee very kindly accompanied me round to a large number of private slaughter-houses. The first was in North Dock Ward. It was well organised and situated well away from dwelling-houses. Both the stable and slaughter shed had carefully cemented floors. A sliding door kept the animal about to be killed outside where it could not see what was coming. The second private slaughter-house was near the Great Northern Railway, down a court, but only a few steps from a broad, well-frequented road with a tramway in it. The slaughter shed was immediately behind a dwelling-house abutting on to this road. On the other side stood the barracks of a fire brigade. This slaughter-house was but a poor, badly lighted shanty much too near dwellings. The walls were whitewashed but there was no other protection and only one small window. The place was wretched but quite clean at the time of my visit. It could not be called a slaughter-house but merely a little hut quite unsuitable for the purpose, in which, nevertheless, animals are killed. The third private slaughter-house was like a little barn with a pointed roof. There was no protection for the walls—I mean no water-tight, washable dado. The part of the floor where the horned cattle fell was of flag-stones which, when struck with the horns, is less likely to break up than concrete. Here, also, there was but one very small window. For the living animals there were a stall in the open and plenty of open space but no proper pavement, only small round stones, and the manure and blood readily sink in between these. The fourth visit was to another oblong, barn-shaped structure, but here at least the walls were daubed over with the tar-like substance known as naphtha-black and thus were much better protected against the splashing. A house overlooked this slaughter-house but it was at a fairly good distance. The fifth slaughter-house visited took, I was told, one and a half hours to whitewash, and this was done once a week. It was also a very small place.

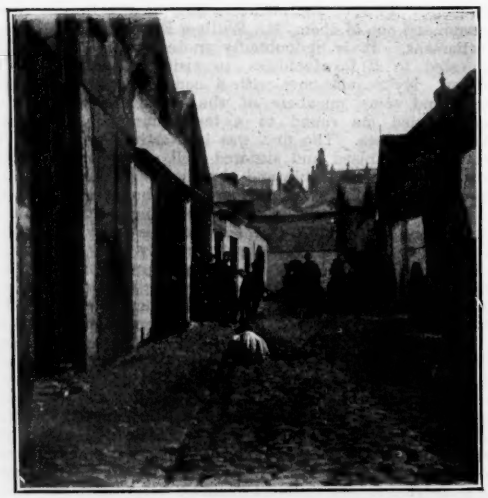
The proprietor of the sixth private slaughter-house which I visited was a man of enterprise; he had travelled, had been to America, and realised that slaughter-houses should be specially built. Therefore his slaughter-house has openings on all sides so as to give a through draught, but they are at a height of at least 15 feet. The workers are thus not inconvenienced by these currents of air. Then on the roof there is a louvred lantern with yellow-tinted windows, thus preventing the sun's rays gaining direct access to the meat and the butchers below. The lower part of the walls was of glazed bricks so that the fire-hose could be employed to wash them down. There were omnibus rails overhead to convey the carcasses along without effort. This slaughter-shed was, indeed, more modern, better built, and better ventilated than any one of the slaughter compartments into which the public abattoir is subdivided, except that for killing pigs.

We now went to the very heart of the city. Just by the side of the most celebrated thoroughfare in Dublin, Sackville-street, there is quite a nest of ramshackle private slaughter-houses. There is also a sort of "Petticoat-lane," or bazaar for second-hand objects of all sorts, a network of narrow passages where only pedestrians can pass and where the goods are displayed on stalls on either side. It is a poor, slummy district, ill-paved and not well frequented. Some of the low structures that apparently were originally intended for stables or coachhouses have been converted into shambles. Behind the first private slaughter-house visited in this district, but the seventh on my list, there still remained a dilapidated stable. Round small

[1] Part I. was published in THE LANCET of Sept, 14th, 1907, p. 795.

stones let the filth through into the subsoil of the centre of Dublin. The eighth slaughter-house was in the same yard. The walls were only protected with whitewash and had many crevices in which dirt and organic matter penetrated and remained to decompose undisturbed. The ninth, close at hand, was somewhat better. The tenth, again, was deplorable and there were many rafters with much dirt and dust on them which could fall on the carcasses. (See Figs. 1 and 2.)

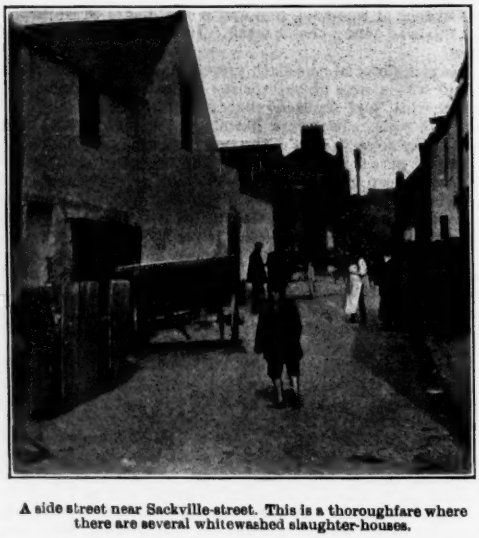
FIG. 1.



A court near Sackville street. The whitewashed buildings are slaughter-houses. The empty carts are waiting to convey meat. The blood often comes out on to the rough pavement where children play about.

On all sides I noticed many dead rats and innumerable living rats infest this cluster of slaughter-houses close behind Sackville-street. The private slaughter-houses are easy to recognise because they are all whitewashed.

FIG. 2.



A side street near Sackville-street. This is a thoroughfare where there are several whitewashed slaughter-houses.

The plentiful and constant use of whitewash is the main redeeming feature. Not only are these little buildings inadequate in themselves but the opening of the doors lets much of the dirt out on to the ill-paved courts or streets. It is absolutely contrary to all principles aiming at the aseptic preparation of meat for carcasses to be handed about in these slums and close to the second-hand clothes market with all its germs and dirt. Then here, as elsewhere, and even in the municipal slaughter-house itself, there is the abomination of the wooden tables riveted to a wall on which the mesenteric fat is cut from the intestines. This is dirty work and the dirt locates between the wall and the table, remaining there even when the table is washed. In one or two places, however, instead of economising two legs of the table by riveting it against a wall there were solid four-legged tables which were not fastened to the wall and could therefore be moved and washed on all sides, and which when taken away did not prevent the washing of the wall.

The eleventh visit was in another thickly populated part of the town. Here some ingenious lifting-pulleys were used. The floor consisted of six inches of concrete and one and a half inches of asphalt. This place had been recently built and the best had been made of the crowded space but obviously slaughter-houses should not be behind shops in crowded quarters. The twelfth visit was also to a slaughter-house on the same premises as, and immediately behind, a shop on the south side of the River Liffey. Here the killing is done in a passage behind a very nice looking shop. There are

FIG. 3.

Private slaughter-house at the far end of a court near the centre of Dublin. There is no through ventilation and there is deficiency of light inside.

stables and horses on one side of the passage. A little lantern roof to give more air and light has been built over the centre of this passage leading to the street behind the shop. Everything was very clean but cramped for want of space. The thirteenth visit was at a distance in the suburbs, not far from the exhibition. Here there was more open space and dwellings were not so near at hand, so some privacy and a good supply of air favoured the butchers. The floors were cemented not only in the slaughter-sheds but also in the stables.

The fourteenth and last visit was to the worst of all these small private slaughter-houses. Down at the far end of an ill-paved, dirty court there is a small, low structure. It has no back windows and hardly any window space in front. Within, innumerable corners, ledges, protuberances, and crevices keep the dirt secreted where the light of day cannot penetrate. There are but a small door and a small window, both on the same side and close to each other, so that it is impossible to establish a through draught (Fig. 3.)

After visiting these 14 private slaughter-houses the Victuallers' Association invited me to meet its committee and to discuss the matter. The discussion, however, was difficult, because all the arguments were directed against the present imperfect and insufficient public abattoir. No one present but myself appeared to have any conception of what a model abattoir might be and such knowledge cannot be

conveyed in conversation. One butcher very justly remarked that the animals must rest before they are killed and be handled in a cleanly manner. If taken to the public abattoir rent had to be paid for them to rest and the master butcher could not be on the spot to see that his men did the work properly. Of course, in a model abattoir under the management of a veterinary surgeon living on the spot the most perfect cleanliness prevails and those who kill are under the direction and strict discipline of the sanitary authority, even if working for private butchers. The great idea was that if a butcher has a private slaughter-house just behind his shop he can kill when he likes, and as much or as little as he likes, according to the fluctuations in the demand for meat. He may want to kill only one animal and it would be a great loss of time to send all the way to the public abattoir. Then, if all the slaughter compartments were occupied he might have to wait a long time before being able to kill that one animal. Also, killing is hot work, and in cold weather it is a great risk for a man to drive outside a butcher's cart with the meat immediately after killing inside the hot abattoir. But there are, even at Dublin, two municipal slaughterers on the spot, employed by the town, and they could do all this retail work for the butchers without the latter having to send men from their shops for just one or two sheep. Then carcasses can be kept under better conditions at the abattoirs than in the small shops of the crowded districts. With properly constructed special vans to convey the meat to the shops it would be in such an excellent state that it would sell for a higher price. This is not a conjecture but what has actually occurred in many towns where model abattoirs have been constructed. The old-fashioned method of storing meat on ice is abolished and the customer soon perceives the improvement in the quality of the meat resulting from its more careful and scientific handling. From the public health point of view each animal must be examined and the carcass stamped by a veterinary surgeon before the viscera are removed. Of course, this is only possible in a public abattoir where the veterinary surgeons and their staff are on the spot at the killing hour. The stamping of the meat would do much to reconcile the Dublin butchers to modern methods. Their representative, Mr. William Field, M.P., has on several occasions attempted to introduce a Bill in the House of Commons for the stamping of imported frozen or chilled meat. At the same time home meat should bear the mark of the inspector. As the inspector could not be at all the private slaughter-houses the purchaser would be able to distinguish between imported meat, home-killed meat under proper inspection, and meat that had not been inspected at all.

Two main misconceptions stand in the way of effective reform. The butchers imagine that if they were compelled to go to a public abattoir this would cause them much extra labour and trouble, together with a considerable financial loss. Already the cry has been raised that if such a course was imposed then they must be compensated and apparently they imagine that they would be entitled to a large sum. Experience extending over several hundred towns shows that the reverse would be the case. But in ignorance of this fact another obstacle is created, and this time by the ratepayers. They, on their side, fear the increase of taxation so as to find means to construct model abattoirs and to compensate a large number of butchers. In answer to this it must be borne in mind that all experience proves that there can be no safer investment than a model municipal abattoir. However great the cost of construction and luxurious the installation, it pays interest on capital and provides for a sinking fund and often yields a considerable profit, thus helping to reduce instead of to raise the rates. The only condition of success is the absolute abolition of all private slaughter-houses.

The next question is the compensation to be paid to butchers, and where there is a genuine loss no one objects to compensation. In any case it is admitted by the German law, and we have before us the experience acquired in some 900 German towns. Of course, there must be a competent and impartial investigation, and then to what does it amount? At Gratz, in all, £160; at Dortmund, £690; at Kassel, £1050; at Magdeburg, £2100; at Kiel, £950; and so on. But at Dublin the position is quite exceptional, for if a complete model abattoir were established the advantage to the butchers would be so great that instead of giving them compensation they might very properly be called upon to contribute towards the cost of an enterprise destined to increase considerably their incomes. It is notorious that what pays best in public slaughter-houses is the utilisation of the by-products and the waste products. In Dublin this lucrative opportunity is wasted. The butchers do not even prepare tripe. Both from the public abattoir and from the private slaughter-houses all this is carted away. From the public health point of view this is most reprehensible. Obviously one of the principal reasons for establishing a public abattoir is to keep the control of these by-industries which are dirtier and more likely to create a nuisance than dealing only with meat under the direct control of the sanitary authority. Fortunately, it so happens that in this case there is complete harmony between financial interests and the interests of public health.

As the butchers of Dublin apparently do not know what to do with their by-products, do not possess the machinery and the technical knowledge for utilising them, this is an admirable opportunity for the town council. A model abattoir must be constructed with separate buildings on the same grounds for the salting and storage of hides, for cleaning, cooking, and tying together in bundles the feet of sheep and pigs; there must be a compartment for boiling calves' and other heads; then, far away, other departments for the preparing of tripe, the cleaning and treating of intestines to convert them into catgut or sausage skins; indeed, there should also be a pavilion for sausage making. Then the blood must be utilised on the spot and there must be a destructor to convert condemned carcasses into manure. In a word, nothing should leave the abattoir till it has been converted into a clean and saleable article. Even the manure should be an inodorous powder (*voudrette*). The most competent men of science and technicians should be obtained, if necessary from Germany, to organise all this. The moment the sanitary inspection of the slaughtered animal is over all the by-products would be conveyed to the different departments at once. After refunding the outlay the butchers would receive a good income from these by-products. At the same time they would realise something from the utilisation for other purposes, or from the sale, of the premises where their private slaughter-houses were situated. These two new sources of income would, in all probability, greatly exceed any extra expense entailed by having all their animals killed at the public abattoir. Dublin might then hope to place itself in this respect on a level with the 900 towns of Germany, not to mention towns of many other countries. The present deplorable and dangerous state of affairs cannot continue.

FOURTEENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

THE OPENING CEREMONY.

Berlin, Sept. 23rd.

EARLY this morning the Congress offices in the Reichstag were thronged with new arrivals inquiring about everything and with those who, having been here a day or two, had discovered that they were wanting in many things. There was the ticket for this entertainment, the subscription for such a banquet, and the supreme perplexity of selecting which of the many visits and excursions it would be best to undertake. Fortunately for the foreigner who could not speak German members of the organising committee and others willing to help bedecked themselves with a yellow ribbon if they could speak English and with a blue ribbon if they could speak French. Many among them proudly wore both colours and thus help was easily found by those who could not otherwise make themselves understood. Loaded with guide-books, lists of members, circulars, and much printed matter were the most recent arrivals as they crossed over from the Reichstag to the New Opera House where the opening ceremony was to take place. They had to pass the column of Victory and the statues of Bismarck and Moltke on their way, though some took the wrong direction and lost themselves in the shade of the fine trees that are the glory of the Thiergarten. The New Opera House

is quite unlike the majority of opera houses. It is a square building with a broad gallery round three sides and a narrower smaller gallery underneath and in the shade of the greater gallery. The higher gallery is by far the best and thus are "the gods" exalted. But on this occasion there were no gods, only goddesses, for here were placed all the ladies. Before 11 o'clock there was scarcely any standing room remaining; from 3000 to 4000 persons must have been present. It was early morning, but the theatre was lighted up and everyone wore evening dress. Exactly at the appointed hour, 11 o'clock, His Highness the Crown Prince appeared in front of the huge royal box, his light-blue uniform contrasting with the deep crimson and heavy drapery of the box. He stood at attention as the President of the Congress delivered an address from the stage. Here sat in rows the official representatives of many Governments. The audience stood facing the centre of the building, so that they had the platform or stage on one side and the royal box on the other side, and it could not be said to which of the two they paid the most attention. When the President (Prince Heinrich zu Schönaich-Carolath) had finished his few words of welcome we were all invited to sit down. But we had hardly taken possession of our seats when the President proposed three cheers for His Imperial Majesty the Emperor and we had to rise again. After we had duly repeated "Hoch!" three times the band played one verse of the National Anthem, which is the same as the English anthem. The band, however, was somewhat brassy and I missed those original and beautiful harmonies introduced by the splendid band of the Garde Républicaine when they welcomed the British physicians and surgeons during their visit to Paris.

After this loyal display we definitely resumed our seats and patiently waited for the long flow of speeches. They were, indeed, very numerous but most of the speakers had the good sense to speak very briefly. The scenery on the stage, if I mistake not, represented the palace of Sanssouci, though this was scarcely felicitous for a congress which on the contrary is worrying over every detail of life so as to make quite sure nothing injurious to health shall be allowed. On the other hand, the front of the stage represented a wood and recalled the forest or recovery schools which honour the Berlin promoters of school hygiene. Then on the side of the stage stood the monumental statue of Hygeia especially made for the Congress by the sculptor Georges Morin. From the galleries hung green garlands, while above fan palm trees drooped their branches gracefully over the ladies. The dark-green of this foliage contrasted with the lighter and more cheerful colours of the ladies' dresses and hats. It cannot be said, however, that the ladies displayed any startling toilettes, nor was there any sparkling show of jewellery. The men had to wear their best attire, though the ladies do not seem to have recognised any such obligation. But then, with wise economy, the women of Germany have refused to let the toilet question become the first consideration of existence. This demonstration of independence in regard to the dress tyranny comes appropriately at this moment, as it so happens that the old grievance of tight-lacing has just come to the front yet once more. A violent controversy on this subject is now engaging the press at large and strenuous efforts are being made to mitigate the evil. Of course, it is obvious which side sanitary reform will support.

After a few but well-spoken words from the Minister of State, Dr. HOLLE, Prince HEINRICH ZU SCHÖNAICH-CAROLATH, member of the Reichstag, member of the Herren-haus or Upper House, and President of the Congress, delivered a long speech which was translated into French by M. FUSTER (Paris). He pointed out that the object of the Congress was to serve all peoples by reducing the prevalence of sickness. The Romans had recognised the importance of hygiene, but in what darkness had they been enveloped since the fall of their great civilisation. However, hygiene had sprung to the fore again with such leaders as Pasteur, Lister, and Koch. Nevertheless, how great and profound was the misery that still remained. It was only necessary to visit any large town to see how much there was to be done and at the same time how many things were attempted. They would see the hospitals, the asylums, the sanitary institutes, and the public abattoirs. It was cheering to note also at these Congresses of Hygiene with what constancy men from all countries followed up from congress to congress the work attempted. Their efforts had led up to the conclusion of official international treaties in regard to precautions against epidemics, to labour protective legislation, and to the war against tuberculosis. The President also gave details of the immense sums spent under the compulsory insurance laws against accidents, sickness, and old age. Such labours were of benefit to all. To study hygiene meant to love your neighbour and to strive for human good.

Dr. BUMME, President of the Imperial Board of Health, spoke next and was followed by the general secretary of the Congress, Dr. NIETNER. Now came in rapid succession Professor WALDEYER, secretary of the Academy of Science; Rector KAFTAN who holds a chair of theology at the University of Berlin; Professor KRANZ, rector of the Technical High School; and Professor SCHMALZ, of the veterinary school.

After these German speeches we reached the international series, led off, on behalf of the French Government, by Professor CHANTEMESSE, of the Pasteur Institute. He was followed by Count DE SALIS, Councillor to H.M. Embassy at Berlin, who spoke as the official representative of the British Government, but he only said a very few words conveying the usual felicitations. Then came Dr. PAGLIANI for Italy, Dr. RITTER VON JURASCHECK for Austria, and another speaker for Hungary. A Japanese officer said a few words in French about the welfare of civilisation and Dr. BERTENSEN came forward as the representative of Russia. By this time the audience began to melt away. Dr. CORTEZO, having paid compliments on behalf of Spain, was followed by Dr. CHARLES HARRINGTON, Professor of Hygiene at the Harvard University, who said the United States Government had determined to invite the next Congress of Hygiene to cross the Atlantic and the city of Washington was impatiently awaiting their arrival. After four more speeches Dr. BARERO rose on behalf of Mexico and Dr. H. G. BORGESIUS for Holland. The Norwegian representative had a word next and then the delegate from Roumania delivered himself of a lengthy discourse. It was long past the lunch hour and more than half the audience had already disappeared when the Danish spokesman concluded the series of international congratulations and compliments.

His Highness the CROWN PRINCE was now at liberty to cross over to the Reichstag and to inaugurate the Exhibition of Hygiene. To-morrow the real work, the meeting of the sections, will begin. This afternoon the members of the Congress are visiting Berlin or examining the Exhibition of Hygiene.

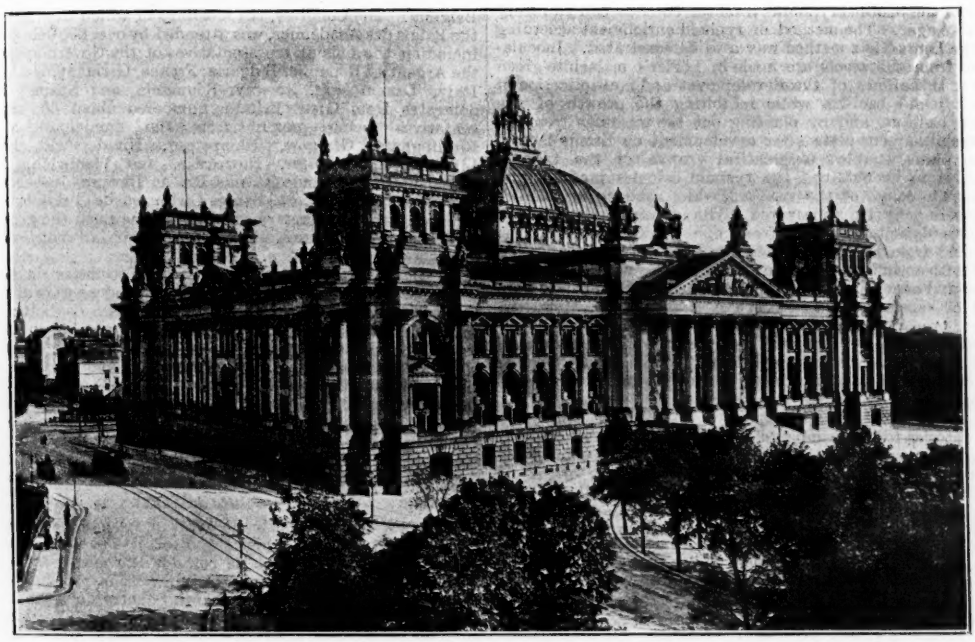
THE EXHIBITION OF HYGIENE.

After the opening ceremony came the inauguration of the Hygienic Exhibition. This is held in the numerous lobby rooms, passages, corridors, and some of the committee rooms of the Reichstag. This massive pile, the German Houses of Parliament, of recent structure, built to house the representatives of a newly united Germany, is just at the beginning of the celebrated Thiergarten which constitutes the "Hyde Park" and "Kensington Gardens" of Berlin. Consequently, it is likewise close to the Unter den Linden, which is the Boulevard des Italiens of the Berliner. All the principal hotels are, of course, close to this choice district and therefore the members of the Congress will not encounter any topographical difficulties in visiting the exhibition or attending the meetings of the Congress. Of course, on the opening day there was but time for a superficial survey of the exhibition. Nevertheless, this sufficed to show its importance. Anyone with a taste for figures, statistics, diagrams, charts, and all kinds of devices to establish by optical means the comparative relationship of one disease to another, or of death to sex, occupation, age, &c., will find here the wherewithal for many hours of study. There are cubes of various sizes and colours showing at once the prevalence of this or that disease in some province, town, or country; also what happened before some special method of treatment was introduced and what has occurred since. On entering by the Brandenburger Thor I first came upon a marble bust of Prince Bismarck and on each side of it were elaborate exhibits of various systems of cremation as if the blood and iron statesman had specially advocated this method of disposing of frail humanity's mortal remains. One model showed a chapel with a place for the coffin on a trap door just before the altar. At a given moment the trap bolts are withdrawn and the coffin sinks out of view as if lowered into the earth. But below the chapel is the crematorium and, whilst the congregation is still praying, the body is consumed underneath. Here also are a variety of urns for the keeping of the ashes, and in a glass jar are shown the white clean ashes of a young woman, aged 18

years, who was cremated at Gotha. Close by is the reconstruction of a place for the preservation of urns which are attributed to an epoch that preceded the Slav era. Thus, the antiquity of the practice of cremation is practically demonstrated. The town of Hamburg shows its crematorium, as do several other cities. A few steps further and there is a table with all the reports of the Prussian statistical department, including a pamphlet on the hundredth anniversary of the existence of this office. Then comes a big stand of vital statistics and diagrams from Rio de Janeiro and immediately opposite is a similar exhibit from the Grand Duchy of Baden-Baden. The reason of such an unexpected juxtaposition is not given and I was left to wonder whether there was any more connexion between Bismarck and cremation than there is between Baden-Baden and Rio de Janeiro.

At this point and to the left there is a long narrow passage where all sorts of diagrams and pictures illustrate the working of the law for compulsory insurance against disease and accidents. Here are hundreds of photographs in large albums taken from life and illustrating all kinds of occupations where accidents may happen. Some photographs show what is defective and others how it can be remedied, and then statistics give the results attained. There are the actual figures and coloured designs or forms so that the proportional relationship of these figures may be realised at a glance. Taking up, as a sample, the first table to hand I found that it related to the accidents which had occurred in the building trades and on German ships in one year. Of these accidents 18,878 are described as inevitable and 9363 are attributed to want of skill. Want of guards—that is, the insufficiency or absence of guards or fencing of machinery—caused 3511 and deficient factory arrangements 3210 accidents. The accidents attributed to acting against rules amounted to 2442, and to the fault of a third person to 2370. The faults of employer and workman caused 2092, the failing to use guards 861 and insufficient instruction 826. The accidents caused by an inevitable outside force amounted to 590, carelessness or flightiness is responsible for 533, and badly fitting clothes for 220 more accidents. Finally, there were 1075 accidents due to unascertained causes. It will be easy to understand that with details concerning all the trades given with equal amplitude year after year there should be no difficulty in ascertaining where are the weak points. When the cause is known the remedy should be close at hand. The enormous masses of people comprised under the compulsory insurance laws of the German Empire provide for the whole world the most extensive and valuable statistics. The students of demography will be able to revel in this department and to find plenty of figures, especially in regard to trades and industries.

In a narrow passage behind this there are many very fine wax models of various skin diseases, and in the broad Wandell-Halle there is a magnificent array of exhibits relating to bacteriology. Then we come to a rotunda where numerous exhibits dealing with the hygiene of school are to be found, such as furniture for growing children. There is the model of the Strasburg Hospital for Children, showing how it has been enlarged while still keeping plenty of garden space and trees. Near by is a life-size model of stall-like partitions made of enamelled iron and of large glass panes by which children in the ward of a hospital can be separated and yet all be kept in view of the attendant. In a side wing the war against tuberculosis is illustrated by models of sanatoriums. There is notably the miners' sanatorium at Sulzhayn in the Harz Mountains, North Germany. Here the galleries for the "air cure" are in the centre of the half-circle made by the building, the dwelling blocks being at each end. Above and below are woods of pine trees. There are models, also, of cottage sanatoriums, and, what I have not seen before, a large collection of lantern slides that would be very useful for lectures on the subject.



The Reichstag.

What is called the Schreibsaal is devoted to exhibits of systems for the treatment of sewage mainly by processes of filtration intended to act bacteriologically on the sewage. Of course, there is a large plan of the Berlin drainage scheme and sewage farms. Many other practical exhibits are to be seen, such as the Clayton and other methods for killing rats on board ship, and a model of the warming and ventilating of the well-known German liner the *Kaiserin-Augusta*. The members of the Congress when weary of hearing papers read in the sections may find the exhibition more interesting, and the sections meet where the exhibition is held, for the Reichstag is large enough to hold them both. For instance, pathologists will find in the exhibits of the Imperial Board of Health of Berlin much that is likely to attract their attention. Thus there are a number of beautiful preparations of the organs of various animals—cattle, rabbits, guinea-pigs, &c.—which had been infected with tuberculosis by subcutaneous and intravenous injection, by inhalation, and by feeding with pure cultures and with tuberculous material derived from both human and bovine sources. The detection and recognition of blood for forensic

purposes with the apparatus employed also forms an interesting exhibit, the method being the precipitation test of Uhlenhuth. By the same means horseflesh, for example, can be identified in sausages. A solution of the sausage is made by emulsification in water and to different portions of the solution the sera of rabbits which have been treated with emulsions of horseflesh, swine-flesh, goats' flesh, &c., are added. A white cloudiness or precipitate forms in the mixtures when the proteid emulsion comes in contact with the homologous serum. In the example quoted, a sausage made with swine flesh and horseflesh, precipitates occurred when the sausage emulsion was mixed with the serum of the rabbits which had been inoculated with swine flesh and with horseflesh but not with the serum of rabbits inoculated with other kinds of animal flesh. Materials, pieces of cloth, linen, &c., which had been examined for the presence of human blood stains were also shown.

The Imperial Institute for Infectious Diseases, Berlin, showed an extensive and well-arranged series of specimens, photographs, diagrams, and apparatus. Large plate cultivations of diphtheria, pseudo-diphtheria, and xerosis bacilli on litmus dextrose agar showed the differentiation of the diphtheria bacillus from the other two by the production of acid in the medium. A similar series showed the differentiation of the bacillus typhosus from the bacillus coli on litmus lactose agar. The method of typhoid enrichment according to the Lentz-Tietz method was also demonstrated. Inoculations from the stools are made in Löffler's malachite-green agar; this allows of the development and multiplication of the typhoid bacillus while inhibiting the growth of the colon bacillus, and by planting out the washings from the malachite-green plate after development on litmus lactose agar plates enables a plentiful growth of the typhoid bacillus to be obtained, the typhoid colonies producing no change in colour of the medium, while such colon colonies as there may be appear red. The differentiation of the various dysentery bacilli from one another and of the typhoid from the paratyphoid bacillus by the precipitation test with an immune serum of high potency was shown in a clear and conclusive manner. Specimens of therapeutic sera and of vaccines prepared at the institute were on view, also cases, preparations, and drawings of ticks, fleas, and blood-sucking diptera. Among the diagrams one showing that the incidence of malaria during different months of the year in Verona coincides with the prevalence of anopheles was of interest.

Sets of portable apparatus for establishing temporary laboratories for the campaign against typhoid fever, cholera, and plague were worthy of notice. Beautiful specimens of pure cultivations of micro-organisms and of the organs of animals which had suffered from the principal infective diseases were noteworthy. Plates of blood-agar inoculated with the staphylococcus aureus from the normal skin and from abscess pus showed that in the former case the organism produces hæmolysis and in the latter it does not, a point of some interest.

The exhibits of a chemical nature and apparatus associated with hygienic chemistry are naturally allotted a somewhat limited space in the exhibition. However, those shown in connexion with the Imperial Board of Health and appearing under paragraphs 34 to 37, p. 151, of the catalogue afford an excellent sample of the nature and scope of chemical investigation in its relation to general hygiene. The buildings of the Imperial Board of Health contain laboratories divided into separate rooms as follows: (1) general chemical laboratory; (2) food analysis laboratory; (3) balance room; (4) polarimeter and spectrometer room; (5) physical laboratory; besides rooms for high-temperature experiments, micro-photography, and stores. With such an equipment every opportunity is afforded for the complete utilisation of analytical experiments for hygienic uses. Photographs of these laboratories are shown. Apparatus for the following processes are exhibited in the same recess: (1) estimation of small quantities of CO in air; (2) testing matches for white and yellow phosphorus; (3) the photographing of absorption spectra of blood; (4) collecting samples of air for examination for noxious gases; (5) the action of lead on drinking water—(*a*) apparatus for determining the extent to which a given water possesses lead-dissolving properties, and (*b*) for testing the action of lead-tin alloys in water; and lastly, the Polenske apparatus for determining volatile acids in butter. The Polenske apparatus is presumably devised as a modification of the apparatus in use for Reichert's process and differs from it in having an upright condenser and a bulbed tube with a more abrupt bend connecting the condenser and flask in order to allow for the erect condenser. The principal use of this process is to detect the presence of cocoanut fat in those butters which give a slight deficiency in the Reichert number, the further distillation of such samples showing the presence of non-soluble volatile acids which are absent from genuine butter fat. Actual adulterations are exhibited in the case of certain foods and drugs, the Halphen test for the presence of cotton-seed oil in butter, the appearance of copper-coloured gherkins contrasted with those not treated in that way, honey and moist sugar, and many other specimens. This exhibition if slight in itself is a valuable addition to the vast field of bacteriological technique shown in the surrounding recesses.

THE SECOND INTERNATIONAL CONGRESS OF "GOUTTES DE LAIT."

(FROM OUR OWN CORRESPONDENT.)

THE second International Congress of Gouttes de Lait was held in Brussels on Sept. 12th-16th, under the patronage of their Royal Highnesses the Prince and Princess Albert of Belgium. The Congress, the meetings of which were held in the Palais des Académies, was attended by over 600 delegates, including the official representatives of the Governments of the Argentine Republic, Bulgaria, France, Germany, Holland, Italy, Luxembourg, Norway, Roumania, and Spain. The delegates from Great Britain numbered about 40, representatives being present from the municipalities of Birmingham, Glasgow, Hampstead, Huddersfield, Hull, Liverpool, Manchester, Newcastle, and Woolwich. The President of the Congress was Dr. A. Devaux, Inspecteur-Général du Service de Santé Civile et de l'Hygiène of Belgium, and the secretary was Dr. Eugene Lust, the general secretary of the Ligue Nationale Belge pour la Protection de l'Enfance du Premier Age.

At the first International Congress of Gouttes de Lait, which was held in Paris in 1905, the discussions were almost exclusively confined to the work of the Goutte de Lait; the scope of the Brussels congress, however, was much more extensive and comprised the whole question of the prevention of infantile mortality. It was decided, moreover, that the scope of future congresses should be similarly extended and that they should be given a new name of wider significance. But it was thought advisable to retain the term "Gouttes de Lait," without translation, in the official title of the Congress, which will henceforth be called the "International Congress of the Protection of Infant Life (Gouttes de Lait)."

The "Goutte de Lait."

The work of the Goutte de Lait, in its various aspects, formed one of the chief subjects of discussion at the Congress. The Goutte de Lait, which is perhaps the most popular of continental institutions for the prevention of infantile mortality, is represented in our own country, in a modified form, by the infants' milk depôts that have of late years been established by several of our municipalities. It is practically a milk dispensary from which babies are fed under regular medical supervision during the first two years of life. Mothers are induced to attend the Goutte de Lait once a week so that their babies may be weighed and examined by the medical man in attendance. The mother is encouraged in various ways to suckle her baby, but if this is impossible she is supplied every day with specially prepared infants' milk in bottles, each bottle containing the proper quantity for one meal. The mothers are carefully instructed in the practical details of infant management, the chief object being to make the Goutte de Lait a school for mothers. There are now over 20 Gouttes de Lait in Brussels, most of which were established by the Ligue Nationale Belge pour la Protection de l'Enfance du Premier Age.

Some of the Brussels Gouttes de Lait are practically well-equipped out-patients' departments. At Dr. Lust's Goutte de Lait in the Place des Martyrs there is a serviceable laboratory where periodical examinations are made of milk, urine, stools, &c. Special attention is paid to nursing mothers. The mother's state of health is ascertained, her teeth are examined by a competent dentist, and any digestive disturbances are carefully attended to. If for any reason the mother appears to be losing her milk prematurely the cause is sought and, if possible, removed. Should the mother herself be insufficiently fed the Goutte de Lait,

acting on the principle that the best method of "humanising" cow's milk is to pass it through the human mother, supplies the mother with milk for her own consumption at a nominal price. All the mothers are furnished with booklets and cards on infant feeding and management, and the printed directions are supplemented with careful oral instruction. Dr. Lust's Goutte de Lait is much frequented by medical students, nurses, and teachers who wish to gain practical experience in infant hygiene.

The Congress decided that the Goutte de Lait was an institution of great value generally both for breast-fed and for hand-fed infants, and that it formed an effective measure for the prevention of tuberculosis.

Infantile Mortality Statistics.

A valuable series of papers was submitted relating to the infantile mortality statistics of 14 countries. The chief fact brought out in these papers is that the systems of birth and death registration adopted in the different countries are so diverse that it is practically impossible to compare the infantile mortality rates one with another. The main point of divergence is the registration of still-births. In some countries, as in England, still-births are not registered at all. In others a child is said to be still-born when, although born alive, it has failed to survive longer than 24 hours. The Congress decided, on the motion of Dr. DIETRICH (Berlin), that a committee should be appointed to consider the best means of establishing a trustworthy basis for precise and uniform international statistics of infantile mortality.

Infant Feeding.

An interesting discussion took place on a paper on the Regulation of Infant Feeding by Dr. SIEGERT (Cologne). Dr. Siegert contended that the method of feeding an infant every two or two and a half hours was without physiological justification and that in practice better results could be secured by allowing an interval of nearly four hours to elapse between each meal. He held that suckling every two hours led to the exhaustion of the mother and to the impoverishment of her milk and consequently to the premature discontinuance of breast-feeding, and he thought that many mothers who now prematurely weaned their babies would continue suckling with excellent results if they were advised to give the breast every four hours instead of every two. Dr. Siegert's views gained considerable support but there were many dissentients.

Milk-supply.

The control of the milk-supply was one of the most important subjects discussed at the Congress and an excellent series of papers was submitted relating to the regulations in force in different countries for the control of the production and distribution of milk. From these papers, and from the discussions to which they gave rise, it was evident that in no country could the control of the milk-supply be considered satisfactory, and there was a general feeling that much more stringent measures were necessary. Mr. NATHAN STRAUS, who for the past 15 years had been supplying pasteurised milk at a nominal price in the poorer districts of New York City, submitted a paper in which he advocated the compulsory municipal pasteurisation of milk. Mr. Straus holds, as a result of his 15 years' practical study of the milk problem, that the "only safe rule is—pasteurise the entire milk-supply and make it a function of the municipality."

Mr. Straus's proposal of compulsory pasteurisation was opposed by Dr. HENRY J. COIT (Newark, N.J.) in his paper on the Development of the Pure Milk Movement in the United States. Dr. Coit contended that compulsory pasteurisation was undesirable because "it would remove the incentive to the public to compel, and to the producer to accomplish, improvement, and so postpone the time when a uniformly pure milk-supply would be available to the masses," and also because "pasteurised milk in bulk is not only intrinsically less desirable than clean raw milk, but is actually unsafe unless it is consumed within 24 hours and is kept constantly at or below 10° C." He thought that the general milk-supply could best be protected by the following measures: "(1) By proper legislation, looking to the elimination and eradication of tuberculosis and other serious diseases of cattle and the exclusion of persons having infectious or contagious diseases from any connexion with the production or handling of milk. (2) By thorough inspection of the sources of milk production, handling, and shipping; by care in the sterilisation of containers; by insuring proper cooling directly after milking and its constant maintenance till delivery to the consumer; by securing sanitary conditions in all places where milk is exposed for sale and the washing of all receptacles immediately after being emptied."

Dr. Coit, who is the President of the American Association of Medical Milk Commissions, gave an interesting account of the "certified milk" movement in America, which he originated in 1893 in Newark, N.J. "Certified milk" was milk that was certified by a voluntary commission of medical practitioners to be produced in accordance with a stringent code of sanitary requirements laid down by the commission. 27 medical milk commissions had now been organised in the principal cities of the United States. The work undertaken by these commissions was as follows: "First, to establish correct clinical standards of purity for cow's milk; second, to be responsible for a periodical and personal inspection of the dairy or dairies under its patronage; third, to provide for bi-monthly expert examination of the dairy stock by competent and approved veterinarians, and for medical supervision of the employees by competent physicians. The milk produced is subjected to periodical chemical analysis and to bacterial counts made under the direction of the commission as often as in its judgment is desirable." The expense of the examinations and inspections was defrayed by the dairymen supplying the certified milk, but the members of the commission received no remuneration for their services.

To many members, however, it appeared that it was hopeless to expect private enterprise to fulfil all the conditions necessary for the adequate protection of milk against contamination and at the same time to supply milk at a sufficiently low price to keep it within the reach of the poor whose present consumption of milk is far too small. The view was expressed that the only solution of the problem was to be found in the municipalisation of the milk-supply. In this way the rise in the price of milk could be prevented, for the municipality, working on a large scale would be able to effect such economies in delivery cartage, and in other processes of distribution as would neutralise the increased expenditure necessitated by the observance of the strict regulations and precautions required by modern sanitary science. A proposal in favour of the municipalisation of the milk-supply was moved by Dr. ENSCH (Schaerbeek, Brussels), and seconded by Mr. F. LAWSON DODD (London). It gained considerable support but was not carried.

The Popularisation of Infant Hygiene.

On the last day of the Congress an instructive discussion took place on the methods employed in different countries for the dissemination of information relating to infant feeding and infant management. Dr. S. G. MOORE (Huddersfield) gave an account of the system of health visiting adopted by many of our sanitary authorities, and he explained how this work would be facilitated by the Notification of Births Act which Mr. John Burns succeeded in passing through Parliament last session.

Dr. COIT gave a brief *résumé* of the health visiting work which is now being carried on with so much energy in New York City, both by the city health department, through its summer corps of physicians and nurses, and by the New York Association for Improving the Condition of the Poor. This association has been enabled by Mr. John D. Rockefeller to employ a large body of trained nurses who, during the past summer, visited 100,000 families, "giving the mothers actual demonstrations of how to bathe, dress, and feed their children, and in cases of illness to care for them in their own homes or in a summer hospital provided by Mr. Rockefeller for their use."

Miss M. G. TAYLOR (Manchester) briefly explained the methods adopted in the Manchester elementary schools for instructing the older girls in the hygiene of infant life. Miss Taylor gives a practical course of instruction to all the older girls in the schools. The course consists of six lectures with practical demonstrations, two lectures being devoted to teaching how a baby should be washed and dressed, two to infant feeding, and two to the general management of infants.

Several teachers took part in this discussion which ended in a short and animated debate arising out of a motion proposed by Dr. WINOCOUROFF (Odessa). This motion was to the effect that the popularisation of infant hygiene was only possible on the condition that the instruction given was accessible to the mass of the population and that the point of departure in all measures for the prevention of infant mortality was "l'instruction générale et obligatoire." M. RENE HENRY, the editor of the *Journal de*

Bruxelles, who took a prominent part in the Congress, pointed out that in some countries, and especially in Belgium, the question of compulsory education was a "question politique irritante," and he suggested that the words "instruction le plus largement généralisée" should be inserted in the motion in lieu of the words "instruction obligatoire." This suggestion was strenuously opposed by the great majority of the members present and after a vigorous debate the decision on the question was remitted to the full meeting of the Congress in the afternoon. At this meeting Dr. WINOCOUROFF insisted on his motion being put in its original form, and his remarks roused so much enthusiasm that the PRESIDENT declared his motion to be adopted by the meeting.

An International Union.

The most important outcome of the Congress is the formation of the "International Union for the Protection of Infant Life." This organisation, which will probably play an important part in the movement for the prevention of infant mortality, has elected Dr. Escherich of Vienna as its president, and the secretary is Dr. Eugene Lust of Brussels. The Union, which has its permanent bureau in Brussels, is controlled by a committee of 50 members, including the following representatives from Great Britain:—Councillor W. F. Anderson of Glasgow, Alderman Broadbent and Dr. Moore of Huddersfield, and Dr. G. F. McCleary of Hampstead.

The next meeting of the Congress will be held in 1910 in Berlin.

THE INTERNATIONAL CONGRESS OF PSYCHIATRY.

(FROM OUR OWN CORRESPONDENT.)

(*Concluded from p. 862.*)

SECTION II.—PSYCHOLOGY.

THE section devoted to Psychology met under the presidency of Dr. G. HEYMANS, professor of philosophy at Groningen, when a few members of the Congress "in thoughts more elevate, and reasoned high" debated such subjects as the difference between apprehension and conception, the oscillations of attention, the association of object conceptions, the classification of character, the mental growth of children, and the biographical methods of psychology.

Dr. PAUL SOLLIER criticised

The Theory of the Emotions

advocated by James and Lange. These philosophers could not help seeing that the beginning of an emotion, say that of fear, was an intellectual anticipation of danger, and this is accompanied by various changes in the functions of the organism. It was pointed out as far back as 1859 by Bain in his book on "The Emotions and the Will" that "the whole brain, with all its connexions in the general framework of the body, is concurrent and participant in a state of mental emotion; and in proportion as the different parts of this extensive machinery can be diverted in other ways the emotion fails to arise or is liable to be suppressed." The difference between Dr. Sollier and James and Lange mainly is that the former seeks to circumscribe the significance of the diffused wave of nervous energy attending an emotion, whereas the latter regarding the cerebro-spinal axis and the sympathetic as one mechanism consider that the change in the whole body is an integral part of the emotion. Dr. Sollier regards the emotion as an affection of the cerebral cortex; the wave of energy which spreads through the nerves to the viscera and capillaries he considers rather to be an epi-phenomenon. He supports this view by some arguments drawn from psychological analyses and experiments on animals, but especially by a reference to pathological cases in which there is a rupture of the means of communication from the brain owing to injuries of the spinal cord below the medulla oblongata, in which Dr. Sollier tells us the emotion appears as intense as in ordinary cases. Before accepting the correctness of this statement, which would be a fatal objection to James's theory, one would like to consider the cases, nor can it quite readily be admitted that emotions at their outset are confined to the cortex cerebri, since the great mass of the white matter has surely something to do. Dr. Sollier concludes by observing that the mental representations and the modifications in the organism occur simultaneously. Emotion is really constituted by the sentiment of the diffusion of the discharge of cerebral energy along with the intense activity of the brain.

The Sthénomètre.

Dr. P. IOIRE, President de la Société Universelle d'Études Psychiques, showed to Section II. his Sthénomètre, by which he claims to be able to demonstrate the presence of a force emanating from the nervous system and of measuring its power. This emanation, he said, appears to be the same as the exteriorised force of the mediums, hitherto so difficult to demonstrate and to study. The index needle shows that it is modified in diseases of the nervous system, suffering a diminution in intensity in proportion to the nervous depression of the subject.

SECTION III.—THE CARE AND NURSING OF THE INSANE.

In this section Dr. VAN DEVENTER detailed what had been already done in Holland for the insane and laid down some proposals for

The Education, Rights, and Duties of the Attendant Attached to Hospitals for Mental Diseases.

He observed that a good staff of attendants is the knot of the question and if his proposals are adopted the duties of the superintendent will be made easy. Before entering on his work the attendant should go through a preparatory course of instruction, compri-ing domestic economy, cooking, household work for women, some notions about nature, teaching, especially in relation to singing, and conversation. It would be desirable that the men should know some trade which might be utilised in the asylum. In the hospital for the insane there should be a graded professional school of instruction conducted by the medical superintendent. The course should occupy three years, with yearly examinations, at the end of which a diploma may be aspired to. The attendant should be insured against accidents and bad health and an old age pension accorded.

In a report by Dr. W. P. RUYSCH the same proposals were maintained with philosophical simplicity. No one should be called upon to assume the functions of an attendant for the insane who cannot give proofs of civilisation, intelligence, capacity, and devotion, and it is desirable that such attendants should have attended with success as interne pupils in a special school. He remarked that their emoluments should be proportional with the importance and the length of their services Here, I may remark, comes in the difficulty of the undertaking. It is possible that these fine qualities may be commoner in Holland than in Great Britain, but human nature is something the same everywhere. The class of men who apply for employment at the asylums in these islands and the pay and maintenance which are allowed to them will need to be improved greatly before the candidates will appear who will come with proofs of the fine moral qualities and accomplishments desired. The vicissitudes of life and a willingness to engage in a good work sometimes bring women of a superior class to apply for employment as nurses to asylums. Few of these women have received any special training, although they often bring the capacity, moral and intellectual, of quickly learning their duties. There is a danger that by too trying examinations and by asking a long period of probation for a formal certificate forbidding barriers may be erected against good applicants.

Dr. van Deventer was followed by Dr. G. E. SHUTTLEWORTH (London) who detailed what had been done by the Asylum Workers' Association in England for the education and welfare of attendants on the insane.

Feeble minded Children in Italy.

Professor FERRARI (Bologna) gave an interesting account of what has been done for feeble-minded children in Italy. They were subjected to training under medical superintendence. In the discussion following Professor Ferrari's paper Dr. ALT (Uchtspringen, Saxony) made some observations upon the treatment of the feeble-minded in Saxony.

The Family Treatment of the Insane.

Much time was taken up by lengthy papers, the substance of which was repeated at a special conference, in praise of what is styled "the 'family' treatment of the insane."

Dr. MARIE (Villejuif) recommended *l'assistance famili e*

et le travail agricole for quiet chronic lunatics and for convalescents. The idea of colonies around the asylum was favoured. Harmless patients and epileptics might be boarded at greater distances.

Dr. PEETERS (Gheel) expressed the opinion that in what he called the "closed" asylums (*asiles fermés*) there was a considerable danger of the patients falling into dementia owing to the lack of amusement and employment, and he even considered that Gheel was better for acute cases.

The Sanatorium Treatment of Insanity.

A paper on the Sanatorium Treatment of Active Insanity by Rest in Bed in the Open Air by Dr. C. C. EASTERBROOK (Ayr) was read by Dr. J. H. MACDONALD (Paisley). The following passage thus sums up his results: "Comparing then the general therapeutical effects in active insanity of outdoor exercise, indoor rest, and outdoor rest, I find that outdoor exercise benefits primarily the physical condition but may retard the mental improvement; that indoor rest benefits primarily the mental condition but may retard the physical improvement; and that outdoor rest benefits from the first both the mental and the physical condition. Outdoor rest thus from the outset promotes both mental and physical improvement, and so retards neither; further, it avoids the risk of undue exhaustion which attaches to the method of exercise; and lastly, it obviates the evils of bodily inactivity and sluggish metabolism which attach to prolonged indoor rest."

Dr. REUTERGHEM (Amsterdam) defended the treatment of hypnotic suggestion against the objections of Déjerine and Dubois; in this he was vigorously supported by Dr. C. LLOYD TUCKEY (London).

Dr. W. W. IRELAND (Musselburgh) read a paper upon the Increase of Diseases of the Nervous System and of Insanity, in which he argued that these derangements were found to be increasing beyond the general increase of the population in every country which furnished statistics, except Norway. The paper is published in full at p. 892 of our present issue.

EXCURSIONS AND PLEASURE VISITS.

The Congress was finished on Sept. 7th by an excursion to Leyden, the Hague, and the asylum at Endergeest. This is situated within large grounds with high trees; the rooms are light and airy, the wooden beds are clean and comfortable, although the furniture is scanty compared with what is seen in British asylums. The equipment of the laboratory is admirable. The excursion finished by a visit to Schevening, the fashionable watering-place of Holland. In the Kursaal 150 guests sat down to an excellent dinner. Appropriate speeches were made by the presidents and other dignitaries. The foreign delegates returned thanks for the courtesy with which they had been treated. After a concert in the large music hall and a display of fireworks the company got back to Amsterdam about midnight, having been away since half-past nine in the morning.

The amusements provided during the week by the hospitable care of the Amsterdamers formed an attractive and improving feature of the Congress. These recreations, besides the opening ceremony already mentioned, comprised a *soirée* by Dr. and Mrs. van Deventer in some beautiful rooms in the Keisergracht, a reception by the burgomaster, and an entertainment by the students' club. There was an excellent entertainment in the Leidisch Plein Theatre where Dutch national songs were sung by a chorus of 20 girls dressed in white and some male vocalists. The Dutch excel in singing in chorus. In the intervals *tableaux vivants* were exhibited reproducing some Dutch paintings representing medical subjects, which included Rembrandt's picture of Professor Tulp giving an anatomical lecture with a dead body in the foreground.

On Sept. 4th there was a pleasant boating excursion to Zaandam where was seen the wooden hut in which Peter the Great lived when he came to Holland to learn shipbuilding.

The visitors left Amsterdam grateful for the unaffected kindness and courtesy with which all had been treated. Thanks are especially due to Dr. van Deventer, Dr. van Wayenburg, and Dr. Londen, to whose good offices so much of the success of the Congress was due. It was gratifying to have so favourable an opportunity of witnessing the energy and intellectual capacity of the Dutch people who inhabit a small country which they have rescued from the sea but which has a history inferior to none in illustrious deeds. Men like Deventer, Jelgersma, and Wertheim Salomonson are worthy successors to Boerhaave, Swammerdam, and Schroeder van der Kolk.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Black Smoke Problem.

AT Preston yesterday a firm of cotton manufacturers was summoned for failing to comply with a notice to abate a smoke nuisance. Mr. H. O. Pilkington, the medical officer of health, said that the evidence proved a nuisance. For the firm it was stated that they were trying to abate the nuisance and had spent £85 on one chimney. The further expression of opinion was hazarded that "there was nothing yet known that would cure the black smoke nuisance." If this were the last word to be said on the matter the dwellers in our towns would have a hopeless future. As the two magistrates on the bench could not agree the chairman thought that it would be better if the case were heard before a fuller bench. This hopelessness as to getting rid of the smoke nuisance did not show itself during the discussion on the subject at the recent sanitary conference at Llandudno. Those who suffer do not need the eloquent indictment of Sir William Richmond to strengthen their feelings on the subject, though the destructive effects on our public buildings as set forth raise the question above the personal sphere. But Mr. Nicholson, a sanitary inspector from Sheffield, showed how much can be done in the way of prevention, without expensive appliances, by careful and intelligent stoking. But the care and the intelligence are not always exercised. These qualities have sometimes been quickened by rewards for the least production of smoke and great improvement has been the result. Mr. Nicholson summed up the matter briefly when he said: "It was quite possible to prevent the emission of black smoke without special appliances, provided there was ample boiler power, reasonable draught, fair fuel, and intelligent stoking." Mr. Rooke of Manchester showed the unfortunate position of the town in being surrounded by large and important manufacturing towns, so that whichever way the wind blew the city got some of the smoke from its neighbours. This is especially hard in the case of Manchester, as it heads the list for its work in regard to the suppression of the smoke nuisance. As Mr. Rooke said, if the districts round Manchester would only carry out the law to the same extent Manchester would have a much purer atmosphere than it has to-day. It is interesting to note that at the recent meetings of the Chambers of Commerce, where it was moved from Manchester that it was desirable to minimise the emission from manufactories of dense volumes of black smoke, "the resolution met with considerable opposition from the representatives of manufacturing centres." The proposition was, however, carried. It is a fact to be lamented that there are still people who will vote for the continuance of black smoke and a polluted atmosphere.

The Infirmary Site.

As to the present site of the Royal Infirmary, the question as regards the corporation most frequently asked is, What will they do with it? Some want the present building pulled down and a free library and art gallery "worthy of the city" put in its place. Others think that the present buildings might very well be altered and adapted so as to serve the same purpose. The corporation, in presence of this clash of opinions, has decided to obtain "the opinion of an eminent architect, absolutely free from local bias" on the question as to whether it is possible or desirable to adapt the infirmary buildings for the purposes named. It has, therefore, asked Mr. T. E. Callcutt, president of the Royal Institute of British Architects, to report as to their adaptability to the purposes of a reference library, art gallery, and municipal offices.

Nursing at the Macclesfield Workhouse.

The Macclesfield board of guardians discussed the nursing arrangements at the union infirmary on Sept. 17th, and it was proposed that the medical officer to the workhouse should report to the board on the organisation of the nursing staff and on the many changes that take place and the engagement of temporary nurses. One of the medical guardians thought that the organisation was at fault and he objected to the course adopted by the board of advertising

for a nurse with certain qualifications and then appointing someone who did not possess them. Some candidates afterwards appeared but none had the necessary qualifications; it was agreed to readvertise the vacancies.

Salford Royal Hospital.

It has long been felt that the Salford Royal Hospital required extension. It is the only general hospital in Salford, with its population of 235,000 to 240,000 people, with a very large proportion of the working classes, and it is believed that when the Manchester Royal Infirmary leaves Piccadilly for Oxford-road the strain on its resources will be materially increased. At present there are 135 beds and it is proposed to have 200, while more accommodation is required fo rthe nurses and staff and for domestic offices. Adjoinin land will have to be purchased and the total cost is estimated at £70,000. Up to the present £27,081 have been received or promised, so that £42,000 have still to be raised. During the past three years the number of out- and home-patients has averaged nearly 20,000 per annum and there has been a considerable increase in the number of in-patients and accident cases. Unfortunately, for the last ten years or so the expenditure has exceeded the income by about £1300 a year and capital funds have been trenched on to meet the recurring deficits. But the average cost per occupied bed of about £43 per annum compares favourably with that of other similar institutions. The authorities of the hospital think that they have a strong claim on the generosity of the public, to which they make a special appeal.

Poisoning by Carbolic Acid.

Carbolic acid is such a familiar domestic article that its being a poison is liable to be forgotten, even though it is, strangely enough, a favourite agent of the suicide and causes more accidental deaths than perhaps any other poison. An inquest held the other day illustrates the carelessness of many working-class people with regard to carbolic acid. A child, three years old, the son of a miner of Failsworth, asked his six-year-old sister for a drink. She took a large bottle off the chimney-piece, thinking it was herb beer, and gave it to the boy. He drank some of the contents and screamed. He was taken to the Royal Infirmary but did not recover from the shock and died there. The verdict was "Death by misadventure" and the jury added that the bottle ought not to have been left within reach of the children. Carbolic acid is, of course, a very useful thing but the cause of a considerable needless loss of life, and the regulations as to its sale should be as stringent as in the case of any other poison. It is unfortunate that several other equally useful but much less poisonous preparations are not more frequently used in its place.

Fatal Homely Remedy.

AN unusual cause of death was investigated at Blackburn 10 or 11 days ago. A woman, aged 60 years, had made a saucer hot and put it under her clothes over her heart as she had suffered from pains in the chest. While crossing the street she fell and was carried home unconscious. It was found that the saucer was broken and that three large pieces had penetrated the chest wall, "medical skill being required for their extraction." She died almost immediately.

Sept. 24th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Bristol Workhouse Infirmary.

SINCE the extension of the city boundaries there have been in Bristol three workhouses—at Eastville, Stapleton, and Southmead. At Eastville there are about 200 sick persons housed in temporary wood and iron buildings under conditions which cause some anxiety to those concerned with the administration of the institutions. Upon many occasions during the past few years the Local Government Board has urged upon the board of guardians the desirability of doing away with these structures and providing better and safer accommodation. Various schemes have been proposed and have arrived at a stage when it appeared likely that they would be adopted, but upon one pretext or another, usually that of expense, they have been abandoned. The latest project was considered by the board of guardians on Sept. 20th. It involved the removal of all the wooden buildings at Eastville and the erection of a double pavilion of a permanent character to accommodate 192 beds at a cost of £13,000. The committee which had the matter under consideration recommended that any alteration of accommodation should be so arranged as to enable a complete system of classification to be adopted by utilising the Stapleton buildings for the imbeciles and epileptics, those at Southmead for the aged and able-bodied, and those at Eastville for the sick. This proposal would entail extensions at each of the three institutions, but it appears to be the most economical and at the same time satisfactory scheme which has yet been considered. It is to be regretted that the recommendation of the committee did not receive the support of a majority of the board which refused to endorse them on the plea that they lacked finality and opened out possibilities of future expense. In the end it was decided to appoint a committee to make arrangements to remove the helpless sick from the wooden buildings at Eastville. One member of the board ridiculed the suggestion that there was more danger from fire in the wooden buildings than in more permanent structures, though it is felt by those experienced in such matters that the retention of the former places a very serious responsibility upon those members of the board of guardians who are opposed to their removal.

Vaccination Fees in Herefordshire.

The fees to be paid to the public vaccinators have now been agreed upon with one exception in each of the eight Herefordshire unions. In the city of Hereford the fee has been reduced from 5*s.* to 3*s.* 6*d.* Elsewhere the only alteration has reference to a second operation performed in the same house within 24 hours. In three unions the fee in this case is to be 2*s.* 6*d.* and in one 3*s.* 6*d.*, while in three others there will be no reduction. The exception indicated above is the Bromyard union where there is as cattered population living in a hilly district on the borders of Herefordshire and Worcestershire. There are three public vaccinators and it was suggested by members of the board of guardians that they should be paid a fee of 4*s.* however great the distance to be travelled. As they very properly declined to accept so inadequate a sum the Local Government Board is to be asked to fix the amount.

Housing at Ebbw Vale.

The medical officer of health of Ebbw Vale has frequently drawn attention to the need of more houses in the district and on one occasion described certain cottages as more like pigsties than anything else. The lack of houses has been taken advantage of by some landlords who have raised the rents to a considerable extent, so much so that it is stated in some instances the workmen pay as rent one-half their wages. Two years ago the urban district council decided to build 20 houses but the Local Government Board would not sanction a loan for the purpose owing to the sites selected being too far distant from the collieries. The matter is still more urgent now than it was formerly and it is hoped that more suitable sites have been secured, so that the erection of houses by the council may be begun. It is intended to have a bath-room in each house.

Madame Patti at Swansea.

Madame Adelina Patti (Baroness Cederstrom) has upon many occasions organised concerts in Cardiff, Swansea, and Brecon for charitable purposes and the local hospitals have always benefited to a considerable extent. About £650 will be handed over to the Swansea Hospital as the result of the latest concert given by Madame Patti on Sept. 19th. This was the ninth occasion upon which she has thus helped the funds of the hospital.

Sept. 24th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Memorial to the late Dr. James Wilson of Govan.

THE fountain which has been erected to the memory of Dr. James Wilson, who was for 21 years a medical practitioner in Govan, was unveiled last week. The chairman of the committee presided and introduced Mr. Robert Duncan, M.P., who, in handing over the gift, eulogised the work of Dr. Wilson. Provost Anthony, one behalf of the town council, accepted the gift.

Portrait of Professor J. G. McKendrick.

In the early part of the year a movement was initiated

to recognise in some appropriate manner the services to science of Professor J. G McKendrick, who last year retired from the chair of physiology in the University of Glasgow. As part of the scheme it was decided that a portrait of Professor McKendrick should be presented to the University, and Mr. J. H. Lorimer, R.S.A., has been commissioned to execute this. It is expected that the formal presentation will take place at the biennial commemoration ceremony at the University in April next. The balance of the fund will be expended on the equipment of a laboratory of experimental psychology.

Retirement of Dr. James Rutherford.

Dr. James Rutherford, the medical superintendent of the Crichton Royal Institution, Dumfries, has tendered his resignation on account of the state of his health. In the 24 years during which Dr. Rutherford has been at the head of the institution it has been greatly developed on the most modern lines. The asylum is endowed and receives private paying patients to the number of about 500. It also provides in separate buildings for the mentally afflicted who are chargeable to the parish councils of Dumfriesshire and Galloway.

Physics Laboratory for University College, Dundee.

Plans have now been approved for the Carnegie Physics Laboratory which is to be erected in connexion with University College, Dundee, and building operations will be commenced immediately. The building will consist of two storeys with basement and attics and will be fitted up after the most modern methods.

Annual Report of the Campbell Hospital, Portsoy.

The annual report by the joint board of the Campbell Hospital has just been issued. During the past year the hospital has been very fully occupied. On May 15th, 1906, there were three patients in the hospital and since then there have been admitted and treated 53 patients. Of these 56 patients 54 were discharged during the year cured and one died, leaving in hospital on May 15th, 1907, one patient who has since been discharged cured. Of the 56 patients 26 were suffering from typhoid fever, 27 from scarlet fever, and three from diphtheria. The patients were admitted from the areas of Banff, Macduff, Portsoy, and Cullen local authorities. There were no "return" cases and no cases of cross infection. During the year the hospital has had to cope with a serious outbreak of typhoid fever in Findochty and with an outbreak of scarlet fever in Banff. The matron's salary has been increased from £40 to £50 per annum. In consequence of the large number of typhoid fever patients simultaneously treated the board had in August last to obtain additional beds, bedding, and furnishings. At the same time the ordinary staff of the hospital had to be supplemented for some time by two extra nurses and a laundry-maid. The board is engaged in considering the necessity of providing additional drying accommodation in connexion with the hospital laundry and some other arrangements to which the medical officer called its attention during the year.

Sept. 24th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Infectious Disease in Belfast.

THE question as to where patients suffering from infectious disease are to be located in Belfast has for some time been a controversial one between the Belfast board of guardians and the public health committee. Up to last year all such cases were treated at the fever hospital in connexion with the union workhouse, with the exception of a few cases of typhoid fever which were treated at the Royal Victoria Hospital. Since the new municipal fever hospital at Purdysburn has been available the guardians have asked that all their fever patients should go there in order to remove the risk of infection from the vicinity of the 4000 people in and about the union workhouse, which is situated in the centre of Belfast. It appears that in the North and South Dublin unions they have no infectious diseases treated at the workhouse. It was stated at a meeting of the Belfast board of guardians on Sept. 17th that there were 31 cases of typhoid, or typhus, fever and other infectious diseases in the union fever hospital and 46 patients in the city fever hospital at Purdysburn. The guardians want to know why, after the ratepayers have gone to such great expense in building outside the city a municipal fever institution, so many infectious cases still remain in the union fever hospital in the heart of Belfast. They are determined to pursue the matter until all the patients suffering from infectious diseases are transferred to the city fever hospital. A lengthened discussion took place on the question at a meeting of the public health committee held on Sept. 19th, when it was decided to ask the guardians to supply returns of the maximum number of each class of infectious diseases under treatment in the union hospital at any one time during the past ten years and this would give an idea of the accommodation that should be provided if the union hospital authorities made an arrangement with the committee to take charge of patients suffering from any of the notifiable diseases. The truth of the matter is quite clear: when the municipal authorities erected an infectious diseases hospital they made it too small, under the impression that such cases up to a certain number could be treated in the union fever hospital, to which, naturally, the guardians object.

Belfast Union Consumption Sanatorium.

The formal opening of the Abbey Sanatorium in connexion with the Belfast workhouse took place on Sept. 19th, the chairman of the board of guardians performing the ceremony. The site cost £5000 and £30,000 have been spent in erecting and equipping the buildings. One section of the building is for the accommodation of early cases and the other is for advanced cases. In the former the average number of cases will be 120, and in the latter 150. There are an administrative central building and four separate pavilions and a hospital block. Around the buildings there are 33 acres of land. When fully equipped it is hoped to have all the workhouse consumptives located in this new sanatorium. This institution reflects the utmost credit on the Belfast guardians.

Queen's College, Belfast: Opening of New Laboratories.

Owing to the sudden illness of Lady Kelvin Lord Kelvin was unable to open, as had been arranged, the new laboratories at Queen's College, Belfast, on Sept. 20th, but his nephew, Mr. James Thompson, M.A., read his address. The President of Queen's College presided, and having referred to the seven laboratories to be opened that day and to the disappointment felt at Lord Kelvin's enforced absence, called upon his nephew, Mr. James Thompson, to read Lord Kelvin's address, which he did. Sir Otto Jaffe then formally declared the laboratories (chemical, physical, engineering, physiological, pathological, biological, and pharmacological) open. Sir Christopher J. Nixon, Vice-Chancellor of the Royal University, moved a vote of thanks to Lord Kelvin, Mr. Thompson, and Sir Otto Jaffe, which was seconded by Professor E. A. Letts, Ph.D. A gold key intended for Lord Kelvin was presented to him through Mr. Thompson. The National Anthem having been sung, a very large company was entertained at a garden party within the college grounds by the president and professors, when the new buildings, which were thrown open for inspection, were visited and greatly admired by the guests. In his address Lord Kelvin referred to the fact that never on one day and in one university were seven laboratories opened for scientific instruction and research; consequently it was, in his opinion, a unique day in university history.

Sept. 24th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Tuberculosis Problems.

TWO interesting questions relating to tuberculosis but differing considerably in their essential aspects have recently claimed attention. The first one had reference to a man who, after being in the service of a railway company for 17 years, had been dismissed as tuberculous and therefore unfit for the work. He thereupon brought an action for damages against the company. An expert was appointed to inquire into the facts and the court awarded the plaintiff 5000 francs on the ground that his unfitness for active and regular work had not been in any way proved because the progress of the disease from which he suffered was slow and he was strong enough to follow his employment. The other question had reference to an antituberculous dispensary. I have already mentioned in THE LANCET that the authorities had resolved

to establish at the Hôpital Laennec a sanatorium for the treatment of pulmonary tuberculosis and to combine with it a dispensary for the benefit of patients suffering from tuberculosis but not able to be admitted to hospitals. In consequence of this decision petitions were sent to the Minister of Public Instruction by the local residents who feared that the children attending a school in the same street, but at a distance of 150 metres, would be in danger of infection. The Conseil d'Hygiène et de Salubrité of the department of the Seine on hearing of this complaint requested M. Letulle to make a report. In this report, which was unfavourable to the prayer of the petitioners, M. Letulle said that in the practical working of methods for the prevention of tuberculosis it was universally found in all countries beyond the possibility of doubt that antituberculous dispensaries were not a danger to the neighbourhood. On the contrary, their effect is to reduce the number of cases of pulmonary tuberculosis and thereby to render the neighbourhood of the dispensaries more healthy.

Transmissible Diseases in Communal Schools.

The Minister of Public Instruction has recently addressed to the prefects a circular in connexion with the precautions to be taken against certain infectious and contagious diseases in the primary public schools. The Minister states that for the purpose of putting an end to a state of uncertainty which might cause uneasiness to families he has resolved to remove *pelade* (alopecia areata) from the official list of contagious diseases; this arrangement has also the approval of the Conseil d'Hygiène et de Salubrité of the department of the Seine. Specific directions are given as to the course to be taken when the following diseases make their appearance in the schools. Children attacked with small-pox or scarlet fever or diphtheria must not return within 40 days; their books and copy-books must be destroyed; and general disinfection must be carried out. In the case of small-pox all the teachers and pupils must be revaccinated and in the case of scarlet fever the school must be temporarily closed if several children fall ill within a few days notwithstanding all precautions. Children attacked with measles must not return within 16 days, their books and copy-books must be destroyed, and if necessary the school may be closed to children under six years of age. Children attacked with epidemic parotitis or whooping-cough must not return within ten days and three weeks respectively. Children affected with tinea must not return until they have received appropriate treatment and have had dressings applied.

The Treatment of Deformities Caused by Tuberculous Disease.

A large orthopædic institute has been established at Berck by Dr. Calot for the treatment of tuberculous diseases of the bones and superficial structures, deformities, dislocations, and coxalgia. Berck is a seaside place in the department of the Pas de Calais; its climate is naturally suitable for this class of patients and Dr. Calot's method of treatment has had a gratifying amount of success. This year he has arranged a series of clinical demonstrations (*conférences*) at which all the details of treatment and all the difficulties likely to be encountered are explained; the process of making and applying various forms of apparatus is also shown upon patients. The daily course of instruction consists of a preliminary discourse lasting for a quarter of an hour and practical instruction for two hours. These courses are well attended by medical men. Dr. Calot attaches much importance to early diagnosis of the diseased condition and steady perseverance in the treatment selected.

Sept. 24th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Medical Examination of Military Recruits and the Workmen's Insurance Law.

IN Germany every young man in his twentieth year has to present himself before a commission consisting of military men and civilians in order to be examined by an army medical officer as to his fitness for military service. This is for a great many young men the first medical examination which they have undergone, and sometimes morbid conditions are discovered of which the man himself was not aware but which, of course, prevent him from entering the army. In order to make these examinations as far as possible useful for the young men thus rejected the Government has decided that in cases where the army medical officer has found some morbid condition which might by appropriate treatment be prevented from becoming worse he shall be authorised to give notice to the authorities of the workmen's sickness insurance organisations in order that they may, if necessary, give attention to the case. This coöperation of the military medical officers with the civilian health authorities will be advantageous to young men in the early stage of pulmonary tuberculosis, as well as to those suffering from other disorders or abnormalities of the lungs, the circulation, the eyes, and so on. The army medical officers are not required either to undertake the correspondence with the insurance offices or to make any suggestions as to the precautions which ought to be taken, since either of these duties would add considerably to their work. They have only during or after the meeting of the recruiting commission to give its civil president the names of the men who seem to require medical attention. The president of the commission will then send a list of these men to the district insurance office (Landes-Versicherungs-Anstalt) which has to decide on the case. Furthermore, when a soldier has been dismissed from the army for some chronic disease during his period of service the military authorities have to notify the case to the district insurance office. These regulations, of course, concern only men earning less than 2000 marks per annum, as they are the only men coming under the provisions of the law relating to insurance against sickness.

Disinfection of the Hands.

Professor Klapp and Dr. Dönitz of the Berlin Surgical Clinic, writing to the *Deutsche Med zinische Wochenschrift*, recommend a new proceeding for the disinfection of the hands of the surgeon and the field of the operation respectively. They point out that the various endeavours that have hitherto been made to produce absolute sterility of the skin by means of chemical agents have failed because germs are left in the folds of the skin. Some surgeons therefore wear gloves during an operation and it has also been proposed to protect the skin with an impermeable covering through which germs could not penetrate. This principle is a very reasonable one, although the practical execution of it is difficult, especially for the skin of the surgeon's hands. Professor Klapp and Dr. Dönitz have now devised a method by which the bacteria are, as it were, imbedded in an impermeable substance. For this purpose they use a solution of wax which in their earlier experiments was dissolved in ether, but they afterwards preferred tetrachloride of carbon as the solvent, being cheaper and less inflammable than ether; this solution, which is termed "chirosoter," is sprayed over the hands by a spray-producer, and when the solvent has evaporated a thin coating of wax is left on the skin. Water, pus, blood, and other fluids now run off the skin just as from oil-paper. It is essential that the skin should be as dry as possible previously to the application of the chirosoter, and therefore a previous disinfection by alcohol, spirit of soap, and similar dehydrating agents is recommended. The coating of wax remains in good condition for a considerable time and is not affected by washing with soap and water. After the operation the wax should not be removed from the hands as it is an excellent cosmetic agent, making the skin soft and smooth. The practical results obtained by this method in a large number of operations are said to have been very good. It has also been found useful in fresh wounds, such as division of tendons, where the surroundings were covered by chirosoter without any other disinfection. Bacteriological examination of the skin showed that the germs present in it were greatly reduced in number.

Sept. 23rd.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

The Prevention of Tuberculosis.

ON July 21st the Swiss Central Committee for Combating Tuberculosis held its fifth annual meeting at Olten. The committee is doing energetic work by forming active subcommittees in the cantons of Bern, Nidwalden, Glarus, Freiberg, Solothurn, Appenzell, Waadt, and Neuchâtel. In eight other cantons the sanatorium committees have undertaken the work and in three other cantons the local sanitary authorities have done so. A women's

league for combating tuberculosis has been founded and hygienic societies have offered their support. Thus there is progress on all sides. Another paragraph is to be added in the new Swiss Insurance Law for workmen, with special reference to increased support in cases of long-standing illness. Dr. Sandog, Dr. Kürsteiner, and Dr. Mailart spoke about the antituberculous dispensaries which have been organised in Neuchâtel, Bern, Lausanne, and Geneva. In Neuchâtel two medical men and a nurse are attached to the dispensary; medical treatment is not undertaken but advice is given regarding prophylactic steps to be adopted. The dispensary supplies spittoons and disinfectants; gives aid in the shape of food, fuel, bedding, &c.; disinfects apartments; and provides for patients in sanatoriums and country homes. In Lausanne and Geneva medical treatment is also provided through the out-patient departments of the University hospitals. Similar dispensaries are to be established in various other Swiss towns.

Medical Students at Swiss Universities.

The number of medical students at the five Swiss universities has again considerably increased. For the summer term 2075 students were on the lists as compared with 1884 in the previous summer. Only 567 were of Swiss nationality, 1508 being foreigners, principally Russians. Energetic steps are being taken by the various university authorities to reduce the number of foreign students. The fees have been increased and the entrance examinations have been made more difficult. The number of students at the universities in the several cities was as follows: Basle, 175 (two ladies); Bern, 538 (334 ladies); Geneva, 445 (241 ladies); Lausanne, 435 (301 ladies); and Zürich, 482 (210 ladies).

Zürich, Sept. 20th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

A Sanitary Reawakening.

ON Sept. 20th, 1870, Rome became the capital of United Italy and yesterday's celebration of the event was conspicuous as compared with the 36 previous celebrations, for the tranquility of the proceedings and the high tone, intellectual and moral, that pervaded the oratory. Abuse of "priestcraft," "obscurantism," and "mediæval superstition"—the *loci communes* of former commemorations—was replaced by serious discussion of Italy's requirements, prominent among which are public instruction and public hygiene, beginning in both cases with the child. And, indeed, the discussion has begun not a day too soon. Education, particularly in its earliest stages, is still deplorably defective, and even if the teaching *personnel* and equipment were more efficient they are heavily handicapped by the sanitary conditions of the accommodation and, above all, by the state of health of the child. Go into any school, urban or rural, attended by the poorer classes and one of the first things that strike you is the number of "adenoids"—victims to naso-pharyngeal obstruction—among the scholars. The "facies adenoidea" (of recent Italian nomenclature) meets you at every turn—betrayed by the pallor, the low vitality, the hebetude alternating with a false vivacity, the "bocca semi-aperta" (half-open mouth), and other symptoms to which the next remove is cretinism. Stand near one of these little pupils and, particularly if he is interested in his task, you can hear his buccal respiration—or "snoring awake," at it has been called. He seems suffering from a chronic cold in the head (*costipazione di testa* is the expressive Italian word for it) and on a nearer look at him you as often as not detect conjunctivitis, lacrymation, or redness of the *margines palpebrales*. In a word, the little man is a victim to those "vegetazioni adenoidei" the result of malnutrition operating on a physique often septic by transmission and reinforced by foul air in the dormitory or in the school itself. The air passages surcharged with this dense mucosity affect the pronunciation, particularly of the nasal vowels and the labial consonants, ending in stammering, stuttering, or positive non-articulation. "Sordità adenoidea" is another symptom due to the same cause and this "deafness" is often found in the proportion of from 20 to 30 per cent. of the attendances. Teacher and pupil alike are thus baffled in their work by causes purely physical and the whole interests of education are compromised by what might be avoided by previous medical surveillance and treatment. That Italy has awoke to increased solicitude in this direction on the part of parents particularly is manifest from the discussions of this very subject in the lay press and from the prominence which it occupies in the programme of the Physio-Therapeutic Congress to be held next month in Rome.

Vegetarianism.

Any movement that makes for intelligent alimentation in food or drink must be welcomed in Italy, where "use and wont" of the most uninquiring or credulous kind have long dictated the *cuisine*. Discussion as to the good or evil to be derived from a diet exclusively vegetarian draws Italy's attention to a field in which she has hitherto fallen much below her opportunities, and this is already one of the gratifying results to be deduced from the opening of "vegetarian restaurants" in the capital. One of these celebrated its "trial trip" on Sept. 19th and the presence of not a few general practitioners and consultants attested the interest taken, professionally as well as socially, in the new departure. The *menu* was compiled from purely vegetable sources, salt was taken very sparingly, and wine was officially excluded. It is true that under these two heads—salt and wine—there was a little mutiny on the part of the guests, some of whom were allowed to gratify their tastes, though in the strictest moderation; but, on the whole, the symposium was a success and, though far from conclusive as solving the question whether, or to what extent, vegetarianism is sound dietetics, it had the collateral recommendation of proving how palatable and even sustaining the "kindly fruits of the earth" may be made by skilled cookery and how an increased demand for the said "fruits" may be instrumental in raising Italy to the position which nature intended her to occupy—that of the "market garden" of Southern Europe.

Sept. 21st.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

A Sanatorium conducted by a Limited Liability Company.

A PROMINENT member of the medical profession has hit on the idea of forming a limited liability company for founding a sanatorium. In Budapest the want of a modern sanatorium where patients of the better class could be accommodated has been felt for a long time and for this reason the idea of carrying on a sanatorium under the management of a company has met with the general approval of the medical profession. The share capital will be a little more than £20,000, divided into 2000 shares. For the first two weeks shares can only be subscribed for by medical men, but they may afterwards be taken up by the general public. Every shareholder has the right to use the sanatorium for one week in a year at half the usual charges. Patients under the care of shareholders will be considered in the first place, and other patients will be accommodated after those under the care of shareholders have been provided for. The sanatorium will be furnished with every modern convenience and a variety of baths, including pine, carbonic acid, Nauheim and Turkish baths. There will also be lying-in wards and two operating theatres. The directorate consists of a surgeon, a gynæcologist, a clinician, and a dermatologist. The charges made for rooms, including nursing and full board, will be most moderate, something about 5*s*., 6*s*., and 10*s*. per day, but the directors nevertheless promise 17 per cent. net dividend, even if all the rooms are occupied only on 300 days per annum.

Lumbar Anæsthesia in Gynæcology.

Dr. Avarffy has published the results of some trials of lumbar anæsthesia which were made in the clinic of Dr. Bársony, professor of gynæcology. He says that the results were very satisfactory. Lumbar anæsthesia, like general anæsthesia by inhalation, has its risks, and there is also a possibility of doing some harm if great care is not taken, especially in observing the special conditions of individual patients. Statistics which exhibit a greater mortality under lumbar anæsthesia than under anæsthesia by inhalation are erroneous, because it is a generally accepted fact that cases of asphyxia, difficult breathing, and collapse are much more frequent during the latter than during the former. The

after-effects of lumbar anæsthesia are also much less serious than the vomiting and pneumonia which so often follow chloroform anæsthesia.

Medical Congress in Pozsony.

A medical congress has just been held in Pozsony, a large city on the Danube wrongly known abroad by its German name of Pressburg. The proceedings commenced on August 27th, with Count Apponyi, Minister of Public Instruction, in the presidential chair. The first address was delivered by Dr. Fisher who spoke on Moral Insanity. He said that this was a mental disease and therefore those suffering from it could not be made accountable for their actions before a court of law. They must be regarded not as criminals but as patients. Dr. Konrad said that there were persons who might be truly described as born criminals. They were, however, not a distinct species of the genus homo but were degenerates. Persons suffering from the so-called moral form of weak-mindedness formed a permanent element in the prison population. They ought not to be admitted into asylums for the insane because they would exert a disturbing influence on the work of such asylums and to keep them in prison would be unjust. The first duty of the law was to protect the community and "anti-social" persons who were at war with society should be banished to distant self-maintaining colonies. Dr. Detre, lecturer at the university of Budapest, showed a new method, devised by him, with the help of which it was possible to decide within 24 hours whether the bacilli with which a tuberculous patient was infected were of human origin or were derived from the lower animals or whether there was a double infection. Dr. Bilasko, assistant-surgeon of the dental clinic, read a paper on anæsthetics in dental surgery. In an address on "The Cosmetic Aspect of Tattooing" Dr. Emil Weyner said that tattooing was extensively applied in dermatological practice for concealing facial scars, and that it was very much in fashion in the army. In the Austro-Hungarian Army almost every soldier was tattooed. Dr. Weyner claims to be the first medical man in the world who tattooed the eyelids.

Sept. 16th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Cholera.

ALL the interested authorities in the Turkish metropolis, such as the Conseil Supérieur de Santé, the Conseil Supérieur d'Hygiène, and the municipalities of different districts, are taking very energetic and extensive measures to prevent the epidemic of cholera which is still raging in several provinces in Russia from invading Ottoman territory. Strict quarantine is imposed upon every steamer and sailing-boat coming from the Black Sea. Ships from Odessa are subjected to three days' quarantine. A special commission has been sent to Sinope on the Black Sea in order to enforce all the quarantine measures of prevention which have been decided upon in Constantinople. Ships bringing Russian pilgrims for the Hedjaz railway will not be allowed to touch at any port on the Bosphorus or the Dardanelles and will have to go directly to Abu-Saad, where they will be subjected to 48 hours' observation and the requisite forms of disinfection. Should, however, a case of cholera manifest itself on board ship during the voyage from Russia to Cavak on the northern entrance to the Bosphorus the ship will be sent back and will have to visit the lazaret at Sinope in order to undergo all the necessary measures provided for the exigency. Should a case of cholera occur beyond the strait of the Bosphorus the steamer will be directed towards the lazaret of Glazomene. Not only pilgrims but also ordinary passengers will have to submit to the same measures. After the quarantine at Sinope passengers will also have to undergo a medical inspection at Cavak. The same will be the case with steamers and passengers coming from Batoum and Sebastopol. In Russia the cholera seems to spread. Eight fatal cases occurred this week at Saratow, 13 at Tsarizin, and 10 at Nijni-Novgorod.

The Hamidié Hospital.

This hospital has issued its *Annales Médicales*. It is a big volume full of interesting information and of beautiful illustrations. It contains original articles by eminent European medical men and an able monograph on "Un Cas de Hernie Diaphragmatique" by the well-known Constantinople surgeon Dr. Cambouroglou Pasha. From these reports it appears that the Sultan has spared neither money nor energy to make his hospital a perfect and in every way an up-to-date establishment. New buildings have been recently erected at great cost. The pavilion for women has received special attention. Mention is made in the volume of the new sanatorium to be erected at Kutahia in Asia Minor. This sanatorium is intended primarily for tuberculous patients. It will be built in the centre of an extensive pine forest on a high elevation upon the plateau of Kutahia which is reputed to possess an abundance of excellent springs. The air of the place is pure and the scenery is magnificent. It will be under the control of the medical authorities of the Hamidié Hospital, thus forming, as it were, a branch of this establishment. A new large edifice with a chemical and analytical laboratory has been added, as the old one proved to be insufficient. The hospital, with all its branches, is under the direction and management of Dr. Ibrahim Pasha, physician to the Sultan.

The Water-supply of Damascus.

It is reported from this city that the work of canalisation for the purpose of supplying it with good drinkable water was begun last month. Up to now Damascus has been provided with water from the Chrysorhoas or the so-called "gold river" of the ancient Greeks, named at present Barada. This river, the Abana of the Bible, intersects the city with its several branches. In olden days there existed an admirable system of channels and pipes, by which water was conveyed through every quarter and almost into every house. There are also numerous wells. The distribution used to take place in a very ingenious manner. It is said that Abana is the life of Damascus and that it has made it perennial. It is also used very extensively for irrigation of the innumerable orchards, gardens, and vineyards and fields that are found in a circuit of at least 60 miles. Damascus and its surroundings owe their almost unrivalled beauty and luxuriance to the Abana. Yet its supply of water, though abundant, was not perfect from a sanitary and hygienic point of view. It has many a time proved to be the source of different epidemics. To remedy matters the former vali, Nazim Pasha, decided to construct canalisation works which would conduct to the city water from the famed source Ain Fijé, 20 kilometres from Damascus. These works, as already mentioned, have been commenced. A large reservoir will be constructed on the heights of Salhyé and the water which will be gathered up there will then be distributed to the different quarters by solid, extensive, and elaborate piping. Every municipal district will be provided with 26 public fountains.

Miscellaneous Notes.

The Sultan has conferred the gold and silver medals of the Imtiaz upon Dr. Zambaco Pasha who distinguished himself especially with his investigations and works on leprosy.—The *Ikdam* reports that a Mahomedan from Bitlis produced a birth certificate according to which he was born in the Turkish financial year 1190, being consequently 133 years old. The man came to Constantinople in search of work. He does not look more than 60.—Last week's mortality returns show that 222 deaths took place in Constantinople, of which one was from scarlet fever, three were from diphtheria, three from small-pox, 12 from typhoid fever, 30 from tuberculosis, and one was due to cerebro-spinal meningitis.—Among the garrison of Tirnovo an epidemic of typhoid fever has broken out. The number of deaths amounts to 50. It is feared that the town will be attacked by the epidemic.

Sept. 20th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Federal Text-book on Pure Milk Questions.

THE Agricultural Department at Washington has issued a volume of reports containing the results of the conference of experts called together by the department to consider the various questions now agitating the country in regard to the purity of the milk-supply. The conference consisted of 35 recognised experts in the study of the questions involved. This volume will be the recognised text-book of the health authorities of this country for the present, as it carries the

weight of authority of these experts and the endorsement of the Department of Agriculture. In brief, these experts agreed upon a definite milk programme and have recommended that public safety should be assured by legislation establishing three classes, or grades, of milk—namely, certified, inspected, and pasteurised. They would not tolerate any trifling with the public in the sale of so-called certified milk. They would require that such milk should come from dairies subject to periodic inspection and that the milk should be frequently analysed; that the cows should be proved to be free from tuberculosis by the tuberculin test and from all other communicable diseases; that the milk should be handled by persons free from infection; that the milk should contain not more than 10,000 bacteria to the cubic centimetre; and that it should be not more than 12 hours old when delivered to the consumer. The conference would permit the sale of such milk raw under the label "certified" and would allow the sale raw, under the label "inspected," of milk that had been similarly produced but did not quite come up to the requirements for certification, provided that such milk came in all cases from tuberculin-tested cows and did not contain more than 100,000 bacteria to the cubic centimetre. Such milk, and only such, do these experts believe should be sold raw; all other milk should be pasteurised. The declaration of the conference is as follows: "Milk from dairies not able to comply with the requirements specified for the production of milk of Classes 1 (certified) and 2 (inspected) is to be pasteurised before being sold and then sold under the designation 'pasteurised milk.'" All milk of unknown origin shall be placed in Class 3 and shall be subjected to clarification and pasteurisation at central pasteurisation plants which shall be under the personal supervision of officers of the health department. The term "pasteurisation" is explained to mean the heating of milk to a temperature of 150° F. for 20 minutes, or 160° for ten minutes, and immediate cooling to 50°.

Third International Sanitary Convention of the American Republics.

It is announced that the Third International Sanitary Convention of the American Republics will be held in the city of Mexico from Dec. 2nd to 7th next. The first convention, held in Washington in 1902, was called in compliance with resolutions relative to sanitary police adopted by the Second International Conference of American States, held in Mexico in 1892. These resolutions were accepted as the basis for the work of the first Convention and resulted in the adoption of certain sanitary and hygienic principles and the establishment of an International Sanitary Bureau at Washington. The Second International Sanitary Convention, held in Washington in 1905, assumed a more formal character than the previous one and resulted in the subscription to a "sanitary convention ad referendum," which codified all the measures destined to guard the public health against the invasion and propagation of yellow fever, plague, and cholera. This sanitary convention ad referendum has been ratified by at least nine republics, and it is provided that the governments which have not signed the present convention are to be admitted to adherence thereto upon demand. The subjects which will especially engage the attention of the third sanitary conference have already been suggested by the Third International Convention of American States held at Rio de Janeiro in 1896. One of them is the establishment and organisation in the place in South America which the conference may designate of a Bureau of Sanitary Information which will furnish to the International Sanitary Bureau already existing the necessary data to comply with recommendations relative to sanitary police. The city of Montevideo is designated as the residence of the Bureau of Sanitary Information.

National Sanitary Department for Cuba.

The Provisional Government of Cuba has created a national sanitary department to meet the emergencies of yellow fever. As organised it consists of a chief sanitary officer, a national sanitary board, the necessary *personnel* for the office and the institutions under its control, a local sanitary officer for each municipality, and the necessary employees. The department is created because the municipal governments have not been able to provide sufficient funds for the support of an efficient sanitary service, nor has there been that concert of action of the municipal authorities so necessary for efficient work during the prevalence of an epidemic. There is no doubt that this nationalised sanitary service will prove of the greatest importance to Cuba, not only in protecting it from yellow fever but in improving the public health of the entire Republic.

Sept. 16th.

Medical News.

UNIVERSITY OF OXFORD.—The following degrees in medicine have been conferred:—

Bachelor of Medicine and Surgery.—John Wallace, Exeter; Richard Evans, Jesus; Cuthbert Taunton Raikes, Trinity; Ernest Laurence Kennaway, New College; Edward Alfred Cockayne, Balliol; Wilfrid Wood Wells, Merton; Arthur Salusbury MacNalty, non-collegiate; and Otto Gustav Ferdinand Luhn, Christ Church.

At examinations held recently the following candidates were successful:—

FIRST M.B. EXAMINATION.

Organic Chemistry.—E. G. Beaumont, University; C. H. Budd, Oriel; W. Burridge, Christ Church; F. A. Hampton, New College; A. H. Southam, Christ Church; A. B. Thompson, New College; C. W. Wheeler-Bennett, Christ Church; and J. A. Wood, University.

Materia Medica.—H. C. Bazett, Wadham; C. F. Beevor, B.A., Magdalen; W. Burridge, Christ Church; C. B. Fenwick, Magdalen; A. D. Gardner, B.A., University; P. L. Gibson, Trinity; H. M. C. Green, B.A., Wadham; N. F. Hallows, Keble; C. H. L. Harper, Wadham; S. Hibbert, University; G. W. Johnson, B.A., Brasenose; E. G. Martin, B.A., New College; H. G. Morris, University; E. O'Connor, M.A., Lincoln; R. C. Ozanne, Hertford; J. F. Penson, non-collegiate; A. F. S. Sladden, B.A., Jesus; E. H. Udall, Queen's; G. H. Varley, B.A., St. John's; and W. E. Waller, University.

Anatomy and Physiology:—J. L. Birley, University; R. F. B. Bowes, B.A., Queen's; R. F. Bridges, B.A., University; A. R. Chavasse, Hertford; G. H. Cross, B.A., Balliol; D. C. Dobell, B.A., Christ Church; P. H. C. Fowell, B.A., St. John's; N. Glover, B.A., Trinity; G. J. Z. Jessel, B.A., University; C. Newcomb, B.A., St. John's; W. J. Oliver, Oriel; A. S. Roe, Balliol; H. W. Scott-Wilson, Queen's; C. J. G. Taylor, University; W. W. Wagstaffe, New College; and R. C. Wingfield, Trinity.

SECOND M.B. EXAMINATION.

Pathology.—C. D. H. Corbett, B.A., University; E. P. Cumberbatch, B.A., Keble; G. R. Girdlestone, B.A., New College; B. G. Klein, B.A., Corpus Christi; S. S. Strahan, Keble; J. Wallace, B.A., Exeter; W. W. Wells, B.A., Merton; and W. C. Wigan, B.A., St. John's.

Forensic Medicine and Hygiene.—M. B. Baines, B.A., Exeter; C. G. Douglas, B.A., Magdalen; M. W. Flack, B.A., Keble; S. Hartill, B.A., New College; J. F. Hornsey, B.A., Wadham; B. G. Klein, B.A., Corpus Christi; O. G. F. Luhn, B.A., Christ Church; J. Wallace, B.A., Exeter; and W. W. Wells, B.A., Merton.

Medicine, Surgery, and Midwifery.—H. B. Billups, M.A., Worcester; E. A. Cockayne, B.A., Balliol; R. Evans, M.A., Jesus; N. Flower, B.A., Exeter; E. L. Kennaway, B.A., New College; O. G. F. Luhn, B.A., Christ Church; A. S. MacNalty, B.A., non-collegiate; C. T. Raikes, B.A., Trinity; and W. W. Wells, B.A., Merton.

M.CH. EXAMINATION.

R. Warren, D.M., New College.

FINAL HONOURS EXAMINATION, SCHOOL OF NATURAL SCIENCE.

Physiology.—Class I.—H. J. B. Fry, Magdalen; H. P. Newsholme, Balliol; E. L. Pearce-Gould, Christ Church; and E. W. M. H. Phillips, Jesus. Class II.—P. P. W. Andrews, University; G. W. Carte, New College; W. F. Harvey, Balliol; G. E. Neligan, Exeter; and R. O. Ward, Queen's. Class III.—C. W. Armstrong, Jesus; A. Booth, Keble; A. W. Donaldson, Hertford; and W. J. Pearson, University. Class IV.—T. B. Batchelor, University.

PRELIMINARY EXAMINATION IN NATURAL SCIENCE.

Mechanics and Physics.—S. M. Bose, Worcester; R. Dell, non-collegiate; A. W. Dennis, Keble; D. D. Drury, New College; R. J. Ford, Queen's; G. P. Furneaux and R. L. Gillingham, non-collegiate; R. S. H. Guinness, Balliol; H. L. Harvey, Oriel; C. Le P. T. Heaslop, non-collegiate; H. Jervis, Trinity; F. C. Lacaita, Balliol; J. T. Lattey, Christ Church; M. M. Machaya, St. John's; J. D. Mackworth, Corpus Christi; F. A. Mason, St. John's; H. W. Normanton, Merton; A. G. Ogilvie, Magdalen; L. A. B. Sharpe, E. A. Sitzler, and T. O. Thompson, St. John's; F. M. Trefusis, Exeter; R. B. Turbutt, Christ Church; B. H. Walker, Queen's; G. E. Webb, non-collegiate; G. E. Whitfield, New College; W. J. Wiltshire, Pembroke; R. B. Winser, Corpus Christi; H. S. Wreford-Glanvill, Merton; W. H. Wyatt, Exeter; and J. V. Young St. John's.

Physics.—J. V. Collier, Christ Church; R. C. Fairbairn, Exeter; A. Jackson, Queen's; A. Juett, Brasenose; E. W. P. Newman and J. N. Oliphant, Christ Church; M. O. Raven, Trinity; and R. Ross, non-collegiate.

Chemistry.—W. H. D. Acland, Christ Church; G. H. Alington and O. Barkan, Trinity; E. Benskin, St. John's; A. C. Brandon, Merton; J. V. Collier, Christ Church; G. Cranstoun, Oriel; A. A. M. Davies, University; R. Dell, non-collegiate; D. D. Drury, New College; R. C. Fairbairn, Exeter; R. J. Ford, Queen's; G. P. Furneaux and R. L. Gillingham, non-collegiate; H. S. H. Guinness, Balliol; S. D. Gurney, Wadham; D. B. I. Hallett, University; M. R. Hely-Hutchinson and J. S. Huxley, Balliol; H. Jervis, Trinity; J. L. Kathju, Exeter; J. T. Lattey, Christ Church; M. M. Machaya, St. John's; J. D. Mackworth, Corpus Christi; F. A. Mason, St. John's; E. E. Mather, Exeter; P. E Meadon, St. John's; Hon. P. A. Methuen, New College; E. W. P. Newman, Christ Church; H. W. Normanton, Merton; A. G.

Ogilvie, Magdalen; J. N. Oliphant, Christ Church; D. R. Parry-Jones, St. John's; O. G. Parry-Jones, Magdalen; Q. D. Pictor, Exeter; T. L. Price, Keble; M. O. Raven, Trinity; R. Ross, non-collegiate; L. A. B. Sharpe and E. A. Sitzler, St. John's; G. B. Tarring, Merton; T. O. Thompson, St. John's; G. E. Webb, non-collegiate; G. E. Whitfield, New College; W. J. Wiltshire, Pembroke; H. S. Wreford-Glanvill, Merton; W. H. Wyatt, Exeter; and J. V. Young, St. John's.

Zoology.—O. Barkan, Trinity; W. H. Bleaden, Brasenose; A. A. M. Davies, University; W. K. Flemmer, Trinity; G. T. Hebert, Christ Church; A. Jackson, Queen's; G. Meade-Waldo, Magdalen; W. H. Thornton, Trinity; T. A. Townsend, New College; and H. T. Vodden, Exeter.

Botany.—G. E. Beaumont, University; E. Benskin and H. M. Bond, St. John's; C. E. N. Bromehead, Merton; W. A. Cooke, Worcester; C. F. Cranswick, Exeter; V. C. H. Dearden, Wadham; A. W. Dennis, Keble; D. B. I. Hallett, University; J. S. Huxley, Balliol; A. Juett, Brasenose; N. S. Lucas, New College; J. C. Moulton, Magdalen; W. H. Ogilvie, New College; R. W. Reed and A. H. Southam, Christ Church; T. A. Townsend, New College; J. F. Venables, Magdalen; H. T. Vodden, Exeter; C. W. Wheeler-Bennett, Christ Church; S. B. White, Keble; J. A. Wood, University; and J. V. Young, St. John's.

UNIVERSITY OF DURHAM.—At examinations for the degree of Bachelor in Medicine held in September the following candidates satisfied the examiners:—

FIRST EXAMINATION.

Elementary Anatomy and Biology, Chemistry and Physics.—First-class Honours: John Hamilton Barclay and Michael Brennan, College of Medicine, Newcastle-upon-Tyne. *Second-class Honours:* William Hudson, College of Medicine, Newcastle-upon-Tyne. *Pass List:* Joseph Jopling Brown and Eleanor Walkinshaw, College of Medicine, Newcastle-upon-Tyne.

Chemistry and Physics.—John Bain Alderson, Ronald Greig Badenoch, Richard Murray Barrow, Roger Errington, David Farquharson, Sarah Louisa Green, Thomas Albert Hindmarsh, Laurence Heber Warneford Iredale, Frank Hutchinson Kennedy, John Lumb, Benjamin Bell Noble, Charles O'Hagan, and Arthur Hyde Wear, College of Medicine, Newcastle-upon-Tyne.

Elementary Anatomy and Biology.—Louis Ernest Seitle Gellé, Edinburgh Medical School; Harold Llewellyn James, Guy's Hospital; and Russell Vyoyan Steele, University College, London.

SECOND EXAMINATION.

Anatomy, Physiology, and Materia Medica.—Oscar Frederick Don Airth, Isaac Bainbridge, Helen Grace Clark, Robert Vickers Clayton, Bloomfield George Henry Connolly, John Hare, Samuel Littlewood, George Cuthbert Mura M'Gonigle, and John Howard Owen, College of Medicine, Newcastle-upon-Tyne; Madeline Rosa Shearburn and Matilda Ann Sinclair, London School of Medicine for Women; Eric Hemingway Shaw and Carl Johan Valfrid Swahnberg, College of Medicine, Newcastle-upon-Tyne; Olivia Nyna Walker; London School of Medicine for Women; and Stanley Worthington and James Carruthers Young, College of Medicine, Newcastle-upon-Tyne.

FOREIGN UNIVERSITY INTELLIGENCE.—*Baltimore (University of Maryland):* Dr. Charles W. McElfresh has been appointed to the chair of Medicine.—*Bologna:* Dr. Carlo Comba has been promoted to the Ordinary Professorship of Children's Diseases.—*Chicago (Rush Medical College):* Dr. Norman M. Harris and Dr. Horace T. Ricketts have been appointed Assistant Professors of Pathological Anatomy and Bacteriology.—*Cracow:* Dr. Alexandre Rosner has been promoted to the chair of Midwifery and Gynæcology, vacant by the death of Professor Jordan.—*Greifswald:* Dr. Paul Römer, first assistant to Professor Hess of Würzburg, has been offered the post of Director of the University Ophthalmic Clinic in succession to Dr. L. Heine who is going to Kiel.—*Lemberg:* Dr. K. Kwietnewski, formerly professor in the University of Pisa, has been appointed to the chair of Comparative Anatomy.—*Montreal (McGill College):* Dr. Armstrong has been appointed to the chair of Surgery.—*Moscow:* Dr. Alexinski has been appointed Extraordinary Professor of Surgery.—*Vienna:* Dr. Hugo Salomon has been recognised as *privat-docent* of Medicine.

DEATH OF A CENTENARIAN.—The *Times* of Sept. 18th states that Mrs. Bricknell died at Cheltenham on Sept. 16th. She was born on August 16th, 1806, and was therefore 101 years old. Mrs. Bricknell retained her faculties to the last and was present at church quite recently.

FIRE ENGINE FOR BAGNALL HOSPITAL.—The provision of fire-extinguishing appliances for hospitals is an absolute necessity in view of the helplessness of the inmates, and the governors of such institutions may be relied upon to realise their responsibilities in this connexion. The North Staffs Joint Hospital Board has just procured a Merryweather manual fire-engine for the small-pox hospital at Bagnall. This engine is suitable for use by four men and is equipped with all necessary appliances for working, including an ample supply of delivery hose. In the event of an outbreak of fire at the hospital this engine should prove very valuable.

APOTHECARIES' HALL OF IRELAND.—At a meeting of the court of directors the following were elected examiners for the ensuing year:—Chemistry and Physics: Professor Hugh Ryan, D.Sc., F.R.U.I.; and J. J. A. O'Sullivan, L.R.C.P. & S. Irel., D.P.H. Biology: Professor D. J. Coffey, M.D., F.R.U.I.; and John Knott, M.D. Dub. Anatomy: Professor A. Fraser, M.D. Glasg., F.R.C.S. Irel.; and P. J. Fagan, F.R.C.S. Irel. Physiology: Professor D. J. Coffey, M.D., F.R.U.I.; and John Knott, M.D Dub. Medical Jurisprudence: W. Pottrell, L.R.C.P. & S. Irel.; and J. C. M'Walter, M.A. R.U.I., M.D. Brux., D.P.H. Pharmacy: J. A. Walsh, L.R.C.P. & S. Irel.; J. C. M'Walter, M.A. R.U.I., M.D. Brux., D.P.H.; and E. F. Hanrahan, M.B., B.Ch. R.U.I. Materia Medica: John Evans, L.R.C.S. Irel.; and John T. D. Crinion, L.R.C.P. & S. Irel. Pathology: J. F. L. Keegan, F.R.C.S. Irel.; and R. J. Rowlette, M.D. Dub. Hygiene: Sir C. Cameron, C.B., M.D. R.U.I.; and C. J. Powell, F.R.C.S. Irel., D.P.H. Ophthalmic Surgery: H. C. Mooney, F.R.C.S. Irel.; and F. Odevaine, F.R.C.S. Irel. Medicine: John Marshall Day, M.D. Dub., D.P.H.; and John O'Donnell, M.B., B.Ch. R.U.I. Surgery (appointed by the General Medical Council): Sir Lambert Ormsby, M.D. Dub., F.R.C.S. Irel.; and Professor F. Conway Dwyer, M.D. Dub., F.R.C.S. Irel. Midwifery and Gynæcology: Gibbon Fitzgibbon, M.D. Dub.; and R. J. Fleming, M.D. Dub.

PROPOSED LABORATORIES FOR THE PREPARATION OF ANTITOXIN SERUM.—At a meeting of the Metropolitan Asylums Board on Sept. 14th a letter was read from the Local Government Board stating that it was willing to assent to the erection and fitting up of a central laboratory for the preparation of antitoxin serum and for bacteriological work, but it was advised that it would be possible to provide what was required at a less cost than £9090, for which the managers had applied for sanction, and it would not be prepared to authorise a total expenditure on the works of more than £6500. The Board was further advised that a saving of not less than £1000 might be effected if the laboratory was erected on the Belmont site at Sutton instead of at Peckham and that the balance of administrative advantage was distinctly in favour of placing the laboratory on that site. On these and other considerations the Board adhered to the suggestion as to the site made in its letter of May 2nd, and it would, therefore, not be prepared to assent to the placing of the proposed buildings at Peckham. Having regard to these views the Asylums Board adopted a recommendation submitted by the hospitals committee agreeing to the alteration of site and authorising the preparation by the architects, Messrs. T. W. Aldwinckle and Son, of an amended scheme.

ST. BARTHOLOMEW'S HOSPITAL AND MEDICAL SCHOOL.—During the past year the following changes have taken place in the teaching staff: Dr. Christopher Addison, who was formerly dean of Charing Cross Medical School and professor of anatomy at the University College, Sheffield, has been appointed lecturer and senior demonstrator of anatomy. Mr. W. D. Harmer has resigned the assistant surgeoncy and has been appointed surgeon in charge of the department for diseases of the throat and nose. Mr. F. A. Rose has been appointed assistant surgeon for diseases of the throat and nose. Mr. G. E. Gask has been appointed assistant surgeon and teacher of clinical surgery. Dr. W. S. A. Griffith has been elected physician-accoucheur with charge of out-patients and will give part of the clinical lectures on diseases of women. Dr. H. Williamson has been elected assistant physician-accoucheur and clinical lecturer in midwifery. Dr. J. A. Willett has been appointed demonstrator of midwifery. Mr. C. E. West has been elected assistant aural surgeon. Mr. C. Gordon Watson has been appointed surgical registrar and has resigned the demonstratorship of anatomy. Mr. L. B. Rawling has been appointed demonstrator of operative surgery. Mr. R. C. Ackland has been appointed dental surgeon and Mr. F. Coleman assistant dental surgeon. Mr. R. C. Elmslie has been appointed demonstrator of pathology and Dr. H. Pritchard and Mr. H. G. Ball have been elected junior demonstrators of pathology. Dr. H. G. Adamson has been appointed chief assistant in the department for diseases of the skin. Dr. C. M. H. Howell has been elected junior demonstrator of physiology and Mr. T. S. Lukis and Mr. C. T. Neve have been appointed assistant demonstrators of biology.—The following awards of scholarships and prizes have been

made during the year 1906-07: Lawrence scholarship, G. T. Burke and J. C. Mead (equal); Brackenbury medical scholarship, E. A. Cockayne; Brackenbury surgical scholarship, P. L. Giuseppi; Matthews Duncan Prize, R. B. S. Sewell; Kirkes scholarship and gold medal, G. T. Burke; Walsham prize, P. L. Giuseppi; Bentley prize, H. J. Cates; Hickens prize, S. Dixon; Wix prize, A. W. J. Cunningham; Senior scholarship, A. P. Fry; Junior scholarship, R. G. Hill, C. D. Kerr, and J. W. Trevan (equal); Sir George Burrows prize, A. W. G. Woodforde; Skynner prize, P. L. Giuseppi; Harvey prize, K. Bremer; Treasurer's prize, R. G. Hill; Foster prize, W. C. Dale; and Shuter scholarship, R. R. Armstrong.

A HOLIDAY course of hygiene for teachers in secondary schools will be held at Göttingen under the supervision of E. von Esmarch from Oct. 7th to 12th. The programme is as follows:—First day, morning—introduction, aims and methods, air and water; afternoon—visit to the gas works and electric power stations. Second day, morning—hygiene of the school building, heating; afternoon—visit to the Physics Institute. Third day, morning—ventilation, lighting, seating; afternoon—visits to the gymnasium and to a primary school. Fourth day, morning—hygiene of the teaching staff and of instruction; afternoon—visit to the girls' high school. Fifth day, morning—causes, diagnosis, and prevention of school diseases; afternoon—practical demonstration of disinfection, visits to the university gymnasium and the town baths. Sixth day, morning—visit to Cassel and inspection of hygienic appliances there.

MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE SOCIETY.—The usual monthly meeting of the executive committee of this society was held at 6, Catherine street, Strand, London, W.C. There were present: Dr. F. de Havilland Hall (in the chair), Dr. F. S. Palmer, Dr. H. A. Sansom, Dr. J. W. Hunt, Dr. M. Greenwood, Dr. W. Knowsley Sibley, Dr. F. J. Allan, Dr. St Clair B. Shadwell, Mr. H. P. Symonds, Mr. J. Brindley James, and Dr. J. B. Ball. The accounts presented showed that during the first eight months of this year the operations of the society had been greater than in any similar period of its working. Since Jan. 1st last nearly £9000 had been distributed to the members in the shape of weekly sick pay and good cash bonuses had been given to those who reached the limiting age of 65 years; yet the funds, which now amounted to over £200,000, had received a substantial increase, as the annual income of the society was considerably larger than its outgo. Prospectuses and all particulars can be had on application to Mr. F. Addiscott, secretary, 33, Chancery-lane, London, W.C.

GROCERY AND ALLIED TRADES ANNUAL EXHIBITION.—The annual exhibition of the grocery and allied trades was opened in the Agricultural Hall, Islington, on Sept. 23rd. The exhibition was a very large and comprehensive one and of course presented several points of interest from a medical standpoint. The food exhibits were on a large scale and comprised almost everything in the tinned-food line. The bakery exhibit was a really remarkable one and showed in a most instructive manner the great progress that has been made in the baker's art. Machinery has to a large extent displaced manual labour in the manufacture of bread, at least in the big bakeries, with probably corresponding advantages to the consumer from the sanitary point of view. The Wilts United Dairies Co., Limited, manufacturers of condensed milk, afforded a practical demonstration of the entire process which milk goes through before it is placed in tins and retailed as condensed milk. Up to a recent period the British condensed milk trade was wholly in the hands of foreigners, and whatever may be the opinion held as to the merits of condensed milk as a food for children it is satisfactory to know that English makers are capable of turning out a product equal to that of foreign manufacturers. Amongst other exhibits of interest may be mentioned those of the Vinolia Company; Field, soap, &c.; Pears' soap, &c.; Caley, chocolate, &c.; Bendorf's Cocoa; Plasmon Co.; and J. A. Sharwood and Co., crystallised fruit. A novel exhibit shown by this last-named company consisted of flowers beautifully made in crystallised sugar. The South African Food Products Co. had an exhibit similar to that shown in the Horticultural Hall, consisting of preserved fruits and wines, berry wax, and calabash pipes. Horlick and Co., makers of malted milk, had a good display. Brand and Co. showed samples of all their well-known products. Armour and Co. had a good exhibit. In fact, all the large firms in any way connected with the grocery and allied trades were showing at the Agricultural Hall, but lack of space forbids a more lengthy account of a very full and instructive exhibition.

BRISTOL MEDICAL SCHOOL.—The annual distribution of prizes in connexion with the Faculty of Medicine of University College, Bristol, will take place in the large hall of the College on Oct. 1st. The prizes will be distributed by Professor Francis Gotch, of the University of Oxford. The annual dinner of the Bristol Medical School, at which Mr. J. H. Parsons, F.R.C.S. Eng., will preside, will take place on the same evening at the Royal Hotel, College Green.

LONDON MEDICAL EXHIBITION.—The Third London Medical Exhibition will be held in the new hall of the Royal Horticultural Society, Vincent-square, Westminster, from Oct. 7th to 11th, from 11 A.M. to 7 P.M. daily. The promoters are putting forth efforts to make the forthcoming exhibition an even more decided success than in previous years. It is understood that the number of exhibitors this year will considerably exceed that of last year. The secretary is sending free tickets of admission to every medical man within a 20-mile radius of London. Application should be made to *The British and Colonial Druggist* offices, 44, Bishopsgate Without, E.C.

VACCINATION FEES IN ESSEX.—At a meeting of the Maldon (Essex) guardians held on Sept. 11th it was stated that the public vaccinators agreed to the new scale of fees so far as the fee of 2*s.* 6*d.* for each case performed at the same house within 24 hours after the first case, but they declined to agree to the alteration in the mileage from 5*s.* to 4*s.* for the first two miles, from 7*s.* 6*d.* to 6*s.* 6*d.* for between two and four miles, and from 10*s.* to 8*s.* 6*d.* after four miles. The matter was referred to the Local Government Board.

ROYAL SOCIETY OF MEDICINE.—The first meeting of the Obstetrical and Gynæcological Section of the Royal Society of Medicine will be held on Thursday, Oct. 10th, at 7.45 P.M. As the agenda shows, this meeting should prove exceptionally interesting. There will be some business connected with the formation of the section, and the paper of the evening, will be on the Physiological Action of the Placenta, by Professor W. E. Dixon and Dr. F. E. Taylor. Future meetings of the section will be held on the second Thursday in each month (except August and September) at 7.45 P.M. Additional meetings may be held from time to time and they will be specially announced.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—On Sept. 21st at Goleen, Co. Cork, the inhabitants of the village presented a wedding gift to Mr. T. Neville, L.R.C.P. & S. Edin., and Mrs. Neville, which took the form of a suite of hall furniture of carved oak, consisting of hall-stand, table, settee, chairs, hall-lamp, hall-clock, and pictures, the latter being views of Dorset chosen to remind Mrs. Neville of her native England. Mrs. Neville is greatly respected by the inhabitants of Goleen and especially by the poor.—Mr. Thomas Gilbert Prosser, M.R.C.S. Eng., L.S.A., J.P., of Monmouth, who for 20 years has been civil surgeon in charge of the Royal Monmouthshire Engineers (Militia), has been presented with a silver coffee service and salver, suitably inscribed, by the past and present officers of the regiment.

DONATIONS AND BEQUESTS.—The late Mr. Samuel Vallentine has bequeathed £1000 to each of the following hospitals for the purpose of endowing a "Jacob and Rachel Vallentine" bed—viz., the London Hospital, St. Peter's Hospital for the Relief of Stone, Charing Cross Hospital, King's College Hospital, Guy's Hospital, St. Thomas's Hospital, the Free Cancer Hospital, and the Metropolitan Free Hospital, Kingsland-road. Such sum as the trustees of his will shall determine has also been left to the Hospital and Home for Incurable Children, Maida Vale, for a "Jacob and Rachel Vallentine" cot.—Under the will of Mr. S. Odames of Leicester £2000 are bequeathed for the endowment of four cots in the Leicester Children's Hospital, £1000 for providing a dispensary, and a like sum to found a cripples' guild.—An anonymous benefactor has promised a donation of £1000 to enable the committee of the Infants' Hospital to begin its work at the new premises, Vincent-square, Westminster, free from debt.—The Royal Dental Hospital of London has received £250, less legacy duty, from the executors of the will of the late Mr. J. L. Toole.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

DAVIDSON, G. E., M.B., B.C. Cantab., has been appointed Medical Officer to the Post Office, No. 6 Albury District of the Guildford Union, Public Vaccinator, and Certifying Factory Surgeon.

DAY, W. F. L., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer and Public Vaccinator for the Parndon, Nazeing, and Roydon Districts of the Epping Union.

EVANS, R. E., M.D., M.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Newcastleton District of the county of Roxburgh.

HILTON, ALBERT, L.S.A., has been appointed Medical Officer of Health to the Hurst District Council, Ashton-under-Lyne.

KING, D. BARTY, M.D., M.R.C.P. Edin., has been appointed Examiner in Medicine and Clinical Medicine at the University of St. Andrews.

MARCH, GEOFFREY COLLEY, L.R.C.P. Lond., M.R.C.S., has been appointed a District Medical Officer by the Dorchester (Dorset) Board of Guardians.

RIGGALL, ROBERT MARMADUKE, L.R.C.P., has been appointed Third Assistant Medical Officer to the Devon County Asylum, Exminster.

TURNOR, P. W., L.R.C.P., M.R.C.S. Eng., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Penkridge District of the county of Stafford.

VAN BUREN, ASA CLAUDE ALI, M.D., B.S. Lond., L.R.C.P., M.R.C.S., has been appointed Honorary Anæsthetist to the Torbay Hospital, Torquay.

VOSPER, SYDNEY, M.R.C.S., L.R.C.P. Lond., has been appointed Assistant House Surgeon at the Metropolitan Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYR DISTRICT ASYLUM.—Junior Assistant Physician, unmarried. Salary £120, with board, apartments, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80 and fees.

BIRMINGHAM AND MIDLAND FREE HOSPITAL FOR SICK CHILDREN.—Resident Medical Officer and Resident Surgical Officer for six months. Salary of each officer at rate of £60 per annum, rising to £80, with board, washing, and attendance.

BRADFORD POOR-LAW UNION HOSPITAL AND WORKHOUSE.—Resident Assistant Medical Officer, unmarried. Salary £100, with rations, apartments, and washing.

BROMPTON HOSPITAL SANATORIUM.—Assistant Medical Officer. Salary £150, with board, lodging, and washing.

BUXTON, DERBYSHIRE. DEVONSHIRE HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with apartments, board, and laundry.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—House Physician. Salary £65 per annum, with board, residence, and laundry.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Pathologist. Salary 100 guineas per annum. Also Two House Physicians for six months. Salary at rate of £50 per annum, with board, washing, and residence.

CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY.—Two House Surgeons, unmarried. Salary of Senior £120 and Junior £80 per annum, with board, lodging, and washing in each case.

CROYDON GENERAL HOSPITAL.—Senior and Junior House Surgeons. Salary of former £105, and of latter £60, with board, laundry, and residence in each case.

DURHAM COUNTY HOSPITAL.—House Surgeon. Salary £120, with board and lodging.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board and washing.

EDINBURGH, ROYAL EDINBURGH ASYLUM, Morningside.—Fourth Assistant Physician.

FARRINGDON DISPENSARY AND GENERAL LYING-IN CHARITY, 17, Bartlett's Buildings, Holborn-circus, E.C.—Honorary Dental Surgeon.

GLOUCESTER, GENERAL INFIRMARY AND THE GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeoncy for six months. Salary at rate of £30 per annum, with board, residence, and washing.

GORDON HOSPITAL, Vauxhall Bridge-road, S.W.—Surgeon.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium £25.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, Assistant Casualty Medical Officer, and House Physician, unmarried, all for six months. Salary £20, with board and residence in the hospital in each case.

HOSPITAL FOR WOMEN, Soho-square, W.—Resident Medical Officer for six months. Salary at rate of £60 per annum. Also Pathologist and Curator of Museum. Honorarium 50 guineas per annum.

HULL CITY AND COUNTY LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, washing, and attendance.

JERSEY DISPENSARY.—Resident Medical Officer. Salary £120, with furnished quarters and attendance.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH, London, W.—Assistant Pathologist. Commencing salary at rate of £150 per annum, rising to £400.

LAMBETH INFIRMARY, Brook-street, Kennington-road, S.E.—Junior Assistant Medical Officer. Salary £100 per annum, with board, residence, &c.

LEICESTER INFIRMARY.—House Physician. Salary £100 per annum, with board, lodging, and washing.

LEWES DISPENSARY AND INFIRMARY AND VICTORIA HOSPITAL.—Resident Medical Officer. Salary £120 per annum, with apartments, board, coal, gas, washing, and attendance.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—House Surgeon. Salary £80 per annum.

LIVERPOOL STANLEY HOSPITAL.—Second Honorary Anæsthetist.

LONDON HOSPITAL, Whitechapel, E.—Surgeon Dentist.

MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £175 per annum, with quarters, attendance, &c.

MANCHESTER ROYAL INFIRMARY.—Resident Surgical Officer, unmarried. Salary £150 per annum, with board and residence.

MANCHESTER, UNIVERSITY OF.—Senior Demonstrator in Physiology. Salary £150, rising to £200 per annum.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Assistant Surgeon.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Resident Medical Officer. Salary £80 per annum, with board, residence, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £60, with board, lodging, and washing.

PAISLEY, RICCARTSBAR ASYLUM.—Assistant Resident Medical Officer. Salary £120 per annum, with board and apartments.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary at rate of £50 per annum, with board, residence, and washing.

PORT ELIZABETH, PROVINCIAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £225, rising to £300, with board and residence.

PORTSMOUTH, ROYAL HOSPITAL.—House Physician for six months. Salary at rate of £50 per annum, with board, &c.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, London, N.—House Surgeon and House Physician. Salaries £75 per annum each. Also Junior House Surgeon and Junior House Physician. Salaries £40 per annum each. With residence, board, and laundry in each case; all for six months.

ROYAL EYE HOSPITAL, OR ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL, Southwark, S.E.—House Surgeon for six months. Salary £52 10s. per annum, with board and residence.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board and residence.

SEAMEN'S HOSPITAL SOCIETY, Greenwich, S.E.—For DREADNOUGHT HOSPITAL: Two House Physicians and Two House Surgeons for six months. Salary at rate of £50 per annum, with board, residence, and washing. For BRANCH HOSPITAL, Royal Albert Dock, E.: Senior House Surgeon for six months. Salary at rate of £75 per annum and additional £25 per annum for acting as Registrar, &c., with board, residence, and washing. Also House Surgeon for six months. Salary at rate of £50 per annum, with board, residence, and washing.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

THROAT HOSPITAL, Golden-square, W.—Senior Clinical Assistants.

VALKENBERG ASYLUM, near Cape Town.—Assistant Medical Officer, unmarried. Salary £250 per annum, rising to £300, with board, washing, and lodging.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Salary £30, with board and lodging.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Assistant Physician.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Junior House Surgeon. Salary at rate of £80 per annum, with board, residence, and washing.

WINSLEY, NEAR BATH, THREE COUNTIES (GLOUCESTER, SOMERSET, AND WILTS) SANATORIUM FOR CONSUMPTIVES.—Resident Medical Officer, unmarried. Salary £200, rising to £300.

WORCESTER COUNTY AND CITY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £140, rising to £160, and all found.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Portrush, in the county of Antrim.

Births, Marriages, and Deaths.

BIRTHS.

CALEY.—On Sept. 19th, at 24, Upper Berkeley-street, W., the wife of H. A. Caley, M.D., F.R.C.P., of a son.

WINTON.—On Sept. 21st, at Worple-road, Wimbledon, the wife of W. B. Winton, M.A., M.D., of a daughter.

MARRIAGES.

JONES—ENSOR.—On Sept. 17th, at St. Mary's, Prittlewell, Frank Silva Jones, M.B., M.R.C.S., to Kathleen, younger daughter of Mr. and Mrs. F. G. Ensor of Westcliff, Essex.

TRAVERS—KINROSS.—On Sept. 19th, at the Church of St. Alban, Teddington, by the Vicar and the Rev. H. E. Eardley, M.A., vicar of St. John's, Tunbridge Wells, Ernest Frank Travers, M.D., of 22, Upper Phillimore-place, Kensington, fifth son of the late William Travers, M.D., F.R.C.S., and of Mrs. Travers, of 2, Phillimore-gardens, Kensington, to Edith Mary, only daughter of the late John Kinross of Dundee.

DEATH.

GOULD.—On Sept. 22nd, at Hatherleigh, Devon, John Gould, J.P., M.R.C.S., aged 85 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

MISLEADING PRESS CUTTINGS.

IN our issue of Sept. 7th under this heading we called attention to the fact that the *Baker's Record*, possibly misled by a press-cutting agency, had taken us severely to task for the antiquity of our views concerning the methods of baking, having assumed for that purpose that a communication to our columns printed on August 22nd, 1829, and reprinted under the title "Looking Back," was a recent editorial article. Now it is the turn of *Milling*. In the issue of *Milling* of Sept. 14th the editor regrets that we should now be opening a correspondence on the use of alum in bread, inasmuch as "the day of alum in British bakeries passed away a full generation ago." THE LANCET took vigorous steps to insure that passing away some three generations ago, and we think that the editor of *Milling* might well let his numerous readers know that he has done us an injustice.

"LOATHSOME BED STUFFING."

To the Editors of THE LANCET.

SIRS,—Your article on Sept. 7th, p. 727, on the above subject is a very opportune one in view of the diseases we are having imported into this country and which the authorities profess they do not know the origin of. This being a free trade country we do not have the easy means of knowing where goods originally come from they have in a protected country. Rags come to this country from Russia through Germany, and we know that cerebro-spinal meningitis has had for generations a habitat there. What more likely than that this is the medium of transit? We know that during the late war these rags could not be had; they are again on the market. Why, I have often been asked, if the rags were infected, have no troubles been traced to the factory where they were being torn up? Simply because in the process of teasing there is a natural disinfectant given off. This, however, is absent when one is lying on a bed, and the human system is also more susceptible to disease at night than through the day. Also, and this is important, you may not inhale sufficient microbes in one night to be deadly, but continue the process and see the result. Your correspondent "R. B. K." describes the process of making a new bed (?) and it is certainly bad enough, but he is apparently not aware of a worse evil in the trade—viz., brokers buy at sales old beds and simply put new cases on and sell them for new. In Glasgow recently all the old bedding from a disused poorhouse was sold by auction. Fleas are quite common amongst unwashed flocks, but I must speak respectfully of them as they do not bite me, but I cannot say that they would not carry infection to me on their feet (see THE LANCET, July 27th, p. 216, and Sept. 14th, p. 779). If ever there was a case calling for Parliamentary intervention in the interests of public health surely this is it.

I am, Sirs, yours faithfully,

Sept. 16th, 1907. A. B. DEWAR.

To the Editors of THE LANCET.

SIRS,—I have read with great interest "R. B. K.'s" letter descriptive of the "cleaning" of bedding; it is certainly a case typical of hundreds in which, to the uninitiated, everything seems clean and wholesome. Similar deception prevails very largely, I am sorry to say, in the new bedding trade where a clean tick covers the filthy flock, already so graphically and correctly described in your columns, and dealers have the audacity to label these death-traps "sanitary bedding."

I am, Sirs, yours faithfully,

Sept. 16th, 1907. ISIS.

THE MEDICAL BADGE.

To the Editors of THE LANCET.

SIRS,—In support of Dr. J. Dulberg's letter I beg to remind your readers that in 1903 when a commercial traveller in professional attire supplanted an eminent surgeon in attendance on an accident in a Midland town I wrote suggesting a distinguishing badge for medical men and inclosed illustrations that would be definite to the public, accurately descriptive to fellow medical men, and not at all repulsive to the wearer, but no one followed on and the matter ended. Since then I met with occasion for such a mark. I was standing on the platform at Charing Cross terminus when one of two young girls fainted near me, and being the only medical man present, so far as I know, I took charge and had her removed to the waiting-room, where quite half a dozen gentlemen in frock coats and silk hats came up at intervals, felt her pulse, examined her pupils, and asked questions. Wishing to get away, I inquired of each whether he was a medical man and received a negative reply. In these circumstances I remained on duty until the patient recovered, but it was extremely distasteful to me to be subjected to such interferences. Had there been any recognised badge should certainly have stuck it in my coat or hat to avert the attentions of these amateur medical practitioners.

I am, Sirs, yours faithfully,

Knightwick, Worcs., Sept. 16th, 1907. JOHN GOOD.

*** Mr. Good incloses coloured illustrations of his proposed badge. It consists of a shield charged with a Greek cross. This and the shield are to be coloured differently for the different qualifications or for the positions held by the wearer. The cross is also charged with a rose, thistle, or shamrock.—ED. L.

ENGLISH AS TRANSLATED FROM THE FRENCH.

WE have received from an esteemed correspondent a circular dealing with a purgative medicine which shows very well the pitfalls into which a translator may be led by relying solely on a dictionary. It reminds us of the schoolboy who rendered "He sealed it with his own seal" by "Sigillavit suâ propriâ phocâ."

Les pastilles auraix sont le seul médicament guérissant la constipation et les affections qui en dérivent. C'est également le seul laxatif agréable à prendre qui n'irrite ni ne congestionne l'intestin, tout en donnant des selles abondantes, sans jamais de coliques.

The pastilles auraix are the only medicament healing the constipation and the affections from it descend. It is the only laxative agreable to take who not incense, and not congestion, the entrails and giving plentiful saddle and never cholic.

THE CONTROL OF HÆMORRHAGE IN BULLET WOUNDS OF THE LUNGS BY AMYL NITRITH.

Dr. Ernest A. Sweet, in the August number of the *Military Surgeon*, Pennsylvania, advocates the use of amyl nitrite in controlling hæmorrhage in bullet wounds of the lungs. Dr. Sweet has given the drug an extended trial and has succeeded in checking hæmorrhage in every case but one, excepting those cases which proved fatal from rupture of aneurysmal dilatation, causing suffocation of the patients. Since nearly one-half of the men killed in battle succumb from penetrating wounds of the chest followed by hæmorrhage as an immediate and serious complication, the introduction of a satisfactory method of treatment is highly important. The administration of amyl nitrite by inhalation of five minims in the form of glass capsules should differ in no respect from the method adopted in the treatment of angina pectoris and asthma. Dr. Sweet recommends that if bleeding fails to cease after the physiological action of the drug has been produced and maintained for several minutes the administration of the drug should be discontinued, as success is not likely to result.

EAR PLUGS.

To the Editors of THE LANCET.

SIRS,—In answer to "F. G." I recommend Hawksley's Antiphones, or sound deadeners. These plugs, fitted into the external ear, can be worn day or night by those for whom the noise makes study or rest impossible. They have been much used by the Services during big gun or rifle practice, and by sportsmen who fear gun-deafness.

I am, Sirs, yours faithfully,

M.B.

*** We have received specimens of the antiphones from Mr. T. Hawksley, 357, Oxford-street, London, W. They are composed of wax and wool. In cold weather the wearer is instructed to warm them by the hand when they can be easily shaped into a cone and moulded into the external ear by the finger. The price is 3*s*. 6*d*. per pair. We have had letters from medical correspondents advocating the employment of ear plugs in the circumstances described by "F. G.," but we take it that he wants details of a particular apparatus and not recommendations of their use.—ED. L.

AN APPEAL.

Dr. Herbert A. Smith writes to us on behalf of the wife of a medical man who has been reduced to great poverty owing to the mental failure of her husband who was for some years in practice. He is now under care but his wife has been left with six children and very scanty means. The British Medical Benevolent Fund has granted her some temporary assistance and it is now proposed to place her in a small business, while a friend who keeps a school has offered to board and educate several of the children for a nominal fee. Dr. Herbert Smith is willing to act as treasurer of a fund for her relief and will be happy to send details to anyone who may care to help. Dr. Herbert Smith's address is The Acacias, Uxbridge-road, West Acton, W.

SECOND-HAND BOTTLES.

To the Editors of THE LANCET.

SIRS,—Although my opinion as a bottle manufacturer may be considered biased, nevertheless I venture to give vent to my surprise that no steps have ever been taken to protect the public against the pernicious use of second-hand medicine bottles. Sanitary authorities, who usually are so keen at ferreting out evils, appear to close an indulgent eye to this pernicious practice. Old used bottles, some of them having been the receptacle of poisonous chemicals which crystallise and never

can be thoroughly washed out, become the prey of the rag and bone picker, who subsequently sells them to a bottle dealer, who in turn subjects them to an apology for cleaning in surroundings which are anything but salubrious. The greatest surprise, however, I must express that the very persons who should know better—namely, doctors—buy such second-hand bottles because they are a few pence cheaper than new bottles. Some doctors buy these bottles in the full knowledge that they are second-hand; others, again, may do so in ignorance, the bottles having been mixed with new ones by dishonest dealers. I think that so powerful a journal as yours should enter into a vigorous campaign against the use of second-hand bottles of any description whatsoever.

I am, Sirs, yours faithfully,

Holborn, E.C., Sept. 23rd, 1907. O. A. PFEIFER.

DEATH FROM AN ESCAPE OF COAL GAS (?).

To the Editors of THE LANCET.

SIRS,—I should very much like your opinion upon a case recently the subject of an inquest. Deceased was found dead in bed at 7 A.M.; he was in his nightshirt, a sheet partially covering his legs, and he had a book by his side on the bed. The room smelt strongly of gas and the one gas burner, which was about seven feet from his head, was turned on; there was no tubing attached to it. The window was shut and the back of the register was closed; there was no covering over the keyhole of the door and there was a space between the bottom of the door and the oilcloth of one-third of an inch with no mat.

A penny-in-the-slot meter was in use and was empty. It is believed, and so far as possible was proved, that less than one pennyworth of gas was in the meter when he went to bed. He might have got up after midnight, gone downstairs and along a passage, and put more pennies in the meter. He had never done so before and the landlord believes it would have been impossible without rousing the household. The cubic capacity of the room was about 950. One pennyworth of gas, which would have been about four hours in escaping, would be 25 feet. This would give about 2½ per cent. of gas in the atmosphere of the room. Would this produce death? The verdict of the jury was "Accidental death caused by an escape of gas."

I am, Sirs, yours faithfully,

Sept. 21st, 1907. M. C. W.

*** We do not think that a proportion of 2½ per cent. of coal gas in the atmosphere of a bedroom would destroy life; that is to say, if the coal gas contained only the usual proportion of carbon monoxide—i.e., about 7 per cent. But the proportion of CO in coal gas varies much and the present fashion of "enriching" ordinary coal gas tends to increase the amount of CO. Our correspondent gives us no information as to the composition of the gas. It must be remembered also that the slot machine may have delivered more gas for a penny than it was estimated to deliver.—ED. L.

F. I. J.—We cannot answer our correspondent quite fully. THE LANCET was born in a hurry into a world that was hardly ready to receive it, and its very masculine mother was quite possibly ignorant of the proper steps to take to nurture the infant. The first number appeared on Sunday, Oct. 5th, 1823. It consisted of 36 demy octavo pages and was printed and published by A. Mead at 201, Strand, opposite St. Clement's Church. By the second number the printer and publisher was changed, the name being now given as C. R. Clement, but the same address is used. The reason for the change may have been that the first printer and publisher became timid, for a promise of revelations concerning the manners of a certain minister, which was made in the first number, was very faithfully redeemed in the second number. The third and fourth numbers were printed at 21, Great New-street, by C. R. Clement, and published at 201, Strand, without a publisher's name. By the fifth number a further change had taken place; the printer remained unaltered but the office of issue was now 4, Catherine-street, Strand, no publisher's name being given. The sixth, seventh, and eighth had the same imprint as the fifth, but the ninth number was printed and published by J. Onwhyn, at 4, Catherine-street, Strand. The address of J. Onwhyn, who was the father of Thomas Onwhyn, the humorous artist, is given in the "National Dictionary of Biography" as 3, Catherine-street, Strand; we like to think that his early connexion with ourselves enabled him to enlarge his premises.

Belfast.—There is no one book on the subject. Our correspondent should consult a work on medical electricity, such as "Medical Electricity," by H. Lewis Jones, M.D., fifth edition (London: H. K. Lewis); or "A Manual of Practical Medical Electricity," by Dawson Turner, M.D., fourth edition (London: Baillière, Tindall, and Cox). The process is painful and only about 10 to 20 hairs can be removed at one sitting. The amount of scarring depends upon the skill of the operator.

Swiss.—Our correspondent is advised to consult his usual medical attendant.

Anglo-Indian.—Our correspondent has omitted to inclose either name or address.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (30th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (2nd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30). P.M.

THURSDAY (3rd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (5th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

THURSDAY (3rd).—NORTH-EAST LONDON CLINICAL SOCIETY (Prince of Wales's Hospital, Tottenham, N.).—4.15 P.M.: Opening Address:—Dr. H. White: The Various Conditions causing Enlargement of the Liver.

FRIDAY (4th).—WEST LONDON MEDICO-CHIRURGICAL SOCIETY (West London Hospital, Hammersmith-road, W.).—8.30 P.M.: Annual Presidential Address:—Mr. R. Lake: The Relationship of Disease of the Ear, Nose, and Larynx to General Medicine.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (30th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eye. 2.30 P.M.: Operations.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. G. Little: Clinique. (Skin.)

TUESDAY (1st).—POST-GRADUATE COLLEGE (West London Hospital Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. H. Campbell: Clinique. (Medical.)

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. R. T. Hewlett: Medicine. 3.15 P.M.: Mr. Carless: Surgery. 4 P.M.: Mr. M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin.

WEDNESDAY (2nd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 2 P.M.: Medical and Surgical Clinics. Mr. K. Scott: Diseases of the Eye. X Rays. 2.30 P.M.: Operations. Dr. Robinson: Diseases of Women.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. J. Berry: Clinique. (Surgical.)

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. F. Taylor:

Medicine. 3.30 P.M.: Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye.

THURSDAY (3rd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eye. 2.30 P.M.: Operations.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.)

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. G. Rankin: Medicine. 3.15 P.M.: Sir W. Bennett: Surgery. 4 P.M.: Mr. M. Davidson: Radiography. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Ear and Throat.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—4 P.M.: Opening Lecture:—Dr. W. H. White: The Various Conditions causing Enlargement of the Liver. (In conjunction with the North-East London Clinical Society.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—6 P.M.: Chesterfield Lecture:—Dr. M. Dockrell: The Present Position of Dermatology.

FRIDAY (4th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. A. Lawson: Clinique. (Eye.)

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. R. Bradford: Medicine. 3.15 P.M.: Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—10 A.M.: Clinique:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Surgical Operations (Mr. W. Edmunds). Clinique:—Ophthalmological (Mr. Brooks). 3 P.M.: Clinique: Medical In-patient (Dr. M. Leslie).

SATURDAY (5th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. X Rays. 2 P.M.: Medical and Surgical Clinics. Mr. K. Scott: Diseases of the Eye. 2.30 P.M.: Operations. Dr. Robinson: Diseases of Women.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich.)—2.30 P.M.: Operations. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1907, which was completed with the issue of June 29th, and the Title-page to the Volume, were given in THE LANCET of July 6th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1907 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 26th, 1907.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 20	30 43	N.E.	...	97	71	53	53	54	Foggy
,, 21	30·33	S.E.	...	101	67	54	55	56	Dull
,, 22	30 45	S.E.	...	108	63	53	53	55	Fine
,, 23	30 30	S.E.	...	101	63	45	49	52	Fine
,, 24	30 06	E.	...	105	69	45	47	48	Foggy
,, 25	29 79	E.	...	119	81	48	55	56	Foggy
,, 26	29 71	S.E.	0 05	77	65	56	61	62	Cloudy

During the week marked copies of the following newspapers have been received:—*Halifax Courier, Westminster Gazette, Daily Chronicle, Edinburgh Dispatch, Morning Post, Daily News, Yorkshire Observer, Glasgow News, Nottingham Evening News, Morning Advertiser, Glasgow Evening Times, Huddersfield Examiner, Nottingham Express, Aberdeen Daily Journal, Sunderland Echo, &c.*

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